Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

June 21, 2011

SUBJECT: FAU Route 2651
(Ardmore Avenue)
Project BRM-8003(799)
Section 07-00083-00-BR (Villa Park)
DuPage County
Contract No 63601
Item 23 A
August 5, 2011 Letting

TO PROSPECTIVE BIDDERS:

To clarify information it is necessary to revise the following:

Proposal- Updated Table of Contents and added pages 146-203

Plans- Updated sheet 2 and added sheets 51-63

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal. Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Since the proposal sheets are printed back to back, bidders are cautioned to exercise care when inserting revised and/or added special provisions into their proposals.

Please call 217-782-7806 if any of the above-described material is not included in this transmittal.

Very truly yours,

Scott Stitt
Acting Engineer of Design and Environment

By: Ted B. Walschleger, P. E.
Engineer of Project Management

INDEX OF SPECIAL PROVISIONS

STRUCTURE GEOTECHNICAL REPORT
ARDMORE AVENUE OVER CNADIAN NATIONAL RAILROAD
F.A.U. 2651, SECTION 76-00046-00 GS
STATION 104+50.70
STRUCTURE NUMBER 022-6930
VILLAGE OF VILLA PARK, DUPAGE COUNTY, ILLINOIS

PREPARED FOR

V3 COMPANIES OF ILLINOIS, LTD

WOODRIDGE, ILLINOIS

APRIL 2009

PREPARED BY

EVEREST ENGINEERING COMPANY

915 WEST LIBERTY DRIVE

WHEATON, ILLINOIS 60187

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TABLE OF CONTENTS

APPENDICES

STRUCTURE GEOTECHNICAL REPORT
ARDMORE AVENUE OVER CANADIAN NATIONAL RAILROAD
F.A.U. ROUTE 2651, SECTION 76-00046-00 GS
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1. INTRODUCTION

This report presents geotechnical studies, analyses, and foundation recommendations based on the results of a subsurface investigation program conducted during the month of October 1976 by others for the proposed Ardmore Avenue over Canadian National Railroad (CNRR). The proposed bridge will replace the existing bridge located in the Village of Villa Park, DuPage County, Illinois. The location of the project is depicted on the *Exhibit 1, Key Map*, attached in the *Appendix*.

The broad objectives of this study were to determine the soil profile, the probable geologic origins of the soils, and the apparent variability of the soils across the site. The objectives also included the estimation of the probable behavior of the soils due to imposed loads and to provide soils-related structure foundation recommendations; and to identify perceived geotechnical conditions that might affect anticipated construction operations. Reference is made to the *General Notices* attached in the *Appendix* for additional information that should be considered in the planning and preparation of the contract documents.

All work was conducted using English units of measurements. Soil boring logs, ground surface elevations, stations, and offsets of as-drilled borings were provided by V3 Companies of Illinois, Ltd.

This study was authorized by Mr. Philip J. Maloney of V3 Companies of Illinois, Ltd. (V3), Woodridge, Illinois.

2. EXISTING STRUCTURE AND PROPOSED IMPROVEMENTS

The Ardmore Avenue Bridge over CNRR, Structure Number 022-6930, is located at Station 104+50.70, in Township 39 North, Range 11 East, Sections 3 and 4, of the 3rd Principal Meridian, in the Village of Villa Park, DuPage County, Illinois.

The existing structure built in 1978 is a three simple span 17" Precast Prestressed Concrete (PPC) Deck Beam bridge supported by stub abutments and pile bent piers. The existing structure is 118'-2" back to back of abutments and out to out deck is 62'-0" with 50'-0" clear width

between curbs and 6'-0" side walk and parapet each side. The existing bridge details are shown on the *Exhibit 2, General Bridge Plan, Exhibit 3, Pile Plan, and Exhibit 4, Pile Details,* attached in the Appendix.

Everest understands that the proposed improvements consist of removal and replacement of the superstructure which includes modification/replacement of the existing abutments and removal of pier columns/caps and crash walls. All of the existing abutment piles will be reused. For Piers 1 and 2, V3 is considering the reuse of all of the existing piles and adding some new piles to each pier to achieve the required capacity. However, V3 has indicated that Illinois Department of Transportation (IDOT) would like to support the piers by driving new piles between the existing piles and abandon all of the existing piles for Piers 1 and 2.

The proposed structure will consist of 17" PPC Deck Beam bridge supported by the pile foundations of the existing/modified abutments and modified/new piers. The proposed structure is 118'-2" back to back of abutments and out to out deck is 62'-0". The bridge will be closed to traffic during construction. The proposed improvements are shown on the *Exhibit 5, General Plan and Exhibit 6, Details,* attached in the Appendix.

3. EXPLORATION AND TESTING

3.1 Soil Borings

For the proposed bridge improvements, Everest has utilized six (6) existing borings SB-4 thru SB-9, previously drilled by others during the month of October 1976. Boring Logs SB-4 thru SB-9 were provided to Everest by V3. The borings varied in depth from 41 feet to 56 feet. The as-drilled boring locations are shown on the *Exhibits 2 and 5,* attached in the *Appendix.*

The standard penetration test (SPT) samples were generally obtained at 2.5 foot intervals for the first 41 feet and at 5 foot intervals for the remaining depth. The subsurface exploration is summarized in *Table 1, Exploration Summary.* Subsurface conditions, including soil description and physical condition of various soil strata, are depicted on *Boring Logs,* attached in *the Appendix.*

Table 1, Exploration Summary

Boring No.	Substructure Unit	Surface Elevation (Feet)	Boring Depth (Feet)
SB-4	North Abutment	699.9	51
SB-5	North Abutment	695.4	41
SB-6	Pier 2	690.0	51
SB-7	Pier 2	691.6	41
SB-8	Pier 1 and South Abutment	701.1	51
SB-9	Pier 1 and South Abutment	699.8	56

3.2 Field and Laboratory Testing

The field testing consisted of determination of unconfined compressive strength for the cohesive soil samples. The laboratory testing consisted of determination of natural moisture content for all of the soil samples. The test results, detailed visual soil descriptions and *IDH* soil classifications are shown on the *Boring Logs,* attached in the *Appendix*.

3.3 Groundwater

Water level observations were made during drilling, upon completion of drilling, and 24-hours after the completion of drilling. The groundwater levels are summarized in *Table 2, Groundwater Summary*.

Table 2, Groundwater Summary

Boring No.	Substructure Unit	Surface Elevation (Feet)	Approx. Groundwater Elevation (Feet)		
			During Drilling	Upon Completion	24 Hours After Completion
SB-4	North Abutment	699.9	683.4	683.4	683.4
SB-5	North Abutment	695.4	681.9	680.9	682.9
SB-6	Pier 2	690.0	683.5	683.5	683.0
SB-7	Pier 2	691.6	682.1	682.1	682.9
SB-8	Pier 1 and South Abutment	701.1	683.1	683.1	683.1
SB-9	Pier 1 and South Abutment	699.8	682.8	682.8	682.8

Groundwater levels encountered in various borings are also shown on the *Boring Logs* and on *Exhibits 7, 8, and 9, Generalized Subsurface Profile,* attached in the *Appendix*.

It is expected that the groundwater levels will vary from those observed on seasonal basis, depending upon the precipitation, runoff, infiltration, land use, and area stream levels. Reference is also made to the section on *Water Levels* in the *General Notices* attached in the *Appendix*.

4. GENERALIZED SUBSURFACE CONDITIONS

The soils at the site consist of clay fill underlain by natural undisturbed clay, sand, loam, sandy loam, sand and gravel to the depths explored. The generalized subsurface conditions are shown on the *Exhibits 7, 8 and 9*, attached in the *Appendix*.

5. ANALYSES AND RECOMMENDATIONS

5.1 Foundation

The existing three span bridge is supported by abutments and piers. Everest understands that the proposed improvements consist of removal and replacement of the superstructure which includes modification/replacement of the existing abutments and removal of pier columns/caps

and crash walls. Everest understands that all of the existing abutment's piles will be reused. For Piers 1 and 2, V3 is considering the reuse of all of the existing piles and adding some new piles to each pier to achieve the required capacity. However, V3 has indicated that Illinois Department of Transportation (IDOT) would like to support the piers/bridge by driving new piles between the existing piles and abandon all of the existing piles for Piers 1 and 2.

The bottom elevation of the solid wall encasement (ground surface elevation against pile during driving) for Piers 1 and 2 is 687.34. Everest has utilized *Modified IDOT Static Method of Estimating Pile Length* for the new piles of Piers 1 and 2. Everest understands that V3 will use pile capacities/lengths determined utilizing the *Allowable Stress Design (ASD)* method and the existing borings SB-6 thru SB-9, drilled by other in 1976. The pile design tables for various pile types are presented below. It is Everest's opinion that the steel H piles will be appropriate pile type in these conditions. The estimated pile lengths include 26± feet pile embedment into the solid wall encased pile bents.

Pile Design Table for Pier 1 utilizing Boring #SB-9

Pile Type	Nominal Required Bearing (Kips)	Allowable Resistance Available (Kips)	Estimated Pile Length (Ft.)
Metal Shell 14"Φ w/.25" walls			
	242	81	48
	246	82	51
	253	84	52
Metal Shell 14"Φ w/.312" walls			
	242	81	48
	246	82	51
	253	84	52
	480	160	66
	485	162	67
	489	163	68
Steel HP 8 X 36			
	265	88	57
	269	90	58
	272	91	59
	273	91	66
	274	91	67
	275	92	68
Steel HP 10 X 42			
	239	80	48
	254	85	49
	255	85	51
	263	88	52
	333	111	57

Pile Design Table for Pier 1 utilizing Boring #SB-9 (Continued)

Pile Type	Nominal Required Bearing (Kips)	Allowable Resistance Available (Kips)	Estimated Pile Length (Ft.)
Steel HP 10 X 57			
	244	81	48
	260	87	49
	260	87	51
	269	90	52
	340	113	57
	344	115	66
	346	115	67
	348	116	68
Steel HP 12 X 53			
	256	85	46
	274	91	47
	293	98	48
	309	103	51
	319	106	52
	410	137	66
	412	137	67
	414	138	68
Steel HP 12 X 63			
	258	86	46
	277	92	47
	296	99	48
	312	104	51
	322	107	52
	414	138	66
	416	139	67
	418	139	68
Steel HP 12 X 74			
	262	87	46
	281	94	47
	300	100	48
	316	105	51
	326	109	52
	419	140	66
	421	140	67
	423	141	68
Steel HP 12 X 84			
	266	89	46
	284	95	47
	304	101	48
	320	107	51
	330	110	52
	425	142	66
	427	142	67
	429	143	68

Pile Design Table for Pier 1 utilizing Boring #SB-9 (Continued)

Pile Type	Nominal Required Bearing (Kips)	Allowable Resistance Available (Kips)	Estimated Pile Length (Ft.)
Steel HP 14 X 73			
	271	90	43
	311	104	46
	332	111	47
	355	118	48
	369	123	51
	381	127	52
	492	164	66
	494	165	67
	496	165	68
Steel HP 14 X 89			
	274	91	43
	315	105	46
	336	112	47
	359	120	48
	373	124	51
	385	128	52
	498	166	66
	500	167	67
	502	167	68
Steel HP 14 X 102			
	278	93	43
	319	106	46
	340	113	47
	364	121	48
	377	126	51
	390	130	52
	503	168	66
	506	169	67
	508	169	68
Steel HP 14 X 117			
	282	94	43
	322	107	46
	345	115	47
	368	123	48
	382	127	51
	394	131	52
	509	170	66
	511	170	67
	514	171	68
Precast 14"x 14"			
	245	82	43

Pile Design Table for Pier 1 utilizing Boring #SB-8

Pile Type	Nominal Required Bearing (Kips)	Allowable Resistance Available (Kips)	Estimated Pile Length (Ft.)
Metal Shell 12"Φ w/.179" walls			
	218	73	60
	226	75	61
Metal Shell 12"Φ w/.25" walls			
	218	73	60
	226	75	61
Metal Shell 14"Φ w/.25" walls			
	259	86	60
	268	89	61
Metal Shell 14"Φ w/.312" walls			
	259	86	60
	268	89	61
Steel HP 10 X 42			
	242	81	60
	252	84	61
Steel HP 10 X 57			
	247	82	60
	257	86	61
Steel HP 12 X 53			
	248	83	55
	259	86	57
	295	98	60
	307	102	61
Steel HP 12 X 63			
	251	84	55
	262	87	57
	298	99	60
	310	103	61
Steel HP 12 X 74			
	239	80	53
	254	85	55
	265	88	57
	302	101	60
	314	105	61
Steel HP 12 X 84			
	242	81	53
	257	86	55
	269	90	57
	306	102	60
	319	106	61

Pile Design Table for Pier 1 utilizing Boring #SB-8 (Continued)

Pile Type	Nominal Required Bearing (Kips)	Allowable Resistance Available (Kips)	Estimated Pile Length (Ft.)
Steel HP 14 X 73			
	242	81	49
	263	88	51
	280	93	53
	297	99	55
	310	103	57
	356	119	60
	370	123	61
Steel HP 14 X 89			
	245	82	49
	266	89	51
	283	94	53
	301	100	55
	314	105	57
	360	120	60
	374	125	61
Steel HP 14 X 102			
	247	82	49
	269	90	51
	286	95	53
	304	101	55
	317	106	57
	364	121	60
	379	126	61
Steel HP 14 X 117			
	250	83	49
	272	91	51
	289	96	53
	307	102	55
	321	107	57
	368	123	60
	383	128	61
Precast 14"x 14"			
	246	82	53
	259	86	55

Pile Design Table for Pier 2 utilizing Boring #SB-7

Pile Type	Nominal Required Bearing (Kips)	Allowable Resistance Available (Kips)	Estimated Pile Length (Ft.)
Metal Shell 12"Φ w/.179" walls			
	232	77	56
	240	80	58
	247	82	59
Metal Shell 12"Φ w/.25" walls			
	232	77	56
	240	80	58
	247	82	59
	348	116	61
Metal Shell 14"Φ w/.25" walls			
	229	76	49
	233	78	51
	262	87	54
	273	91	56
	282	94	58
	291	97	59
Metal Shell 14"Φ w/.312" walls			
	229	76	49
	233	78	51
	262	87	54
	273	91	56
	282	94	58
	291	97	59
	427	142	61
Steel HP 8 X 36			
	256	85	61
Steel HP 10 X 42			
	252	84	54
	271	90	56
	276	92	57
	277	92	58
	287	96	59
	321	107	61

Pile Design Table for Pier 2 utilizing Boring #SB-7 (Continued)

Pile Type	Nominal Required Bearing (Kips)	Allowable Resistance Available (Kips)	Estimated Pile Length (Ft.)
Steel HP 10 X 57			
	258	86	54
	276	92	56
	282	94	57
	283	94	58
	292	97	59
	328	109	61
Steel HP 12 X 53			
	262	87	49
	276	92	51
	308	103	54
	328	109	56
	335	112	57
	336	112	58
	348	116	59
	395	132	61
Steel HP 12 X 63			
	265	88	49
	278	93	51
	311	104	54
	331	110	56
	338	113	57
	339	113	58
	351	117	59
	398	133	61
Steel HP 12 X 74			
	268	89	49
	282	94	51
	315	105	54
	336	112	56
	342	114	57
	343	114	58
	355	118	59
	404	135	61
Steel HP 12 X 84			
	272	91	49
	286	95	51
	319	106	54
	340	113	56
	347	116	57
	348	116	58
	360	120	59
	410	137	61

Pile Design Table for Pier 2 utilizing Boring #SB-7 (Continued)

Pile Type	Nominal Required Bearing (Kips)	Allowable Resistance Available (Kips)	Estimated Pile Length (Ft.)
Steel HP 14 X 73			
	274	91	44
	317	106	49
	329	110	51
	371	124	54
	393	131	56
	401	134	57
	402	134	58
	416	139	59
	479	160	61
Steel HP 14 X 89			
	277	92	44
	320	107	49
	333	111	51
	375	125	54
	397	132	56
	406	135	57
	407	136	58
	421	140	59
	485	162	61
Steel HP 14 X 102			
	240	80	41
	280	93	44
	324	108	49
	337	112	51
	379	126	54
	402	134	56
	410	137	57
	411	137	58
	425	142	59
	491	164	61
Steel HP 14 X 117			
	243	81	41
	284	95	44
	328	109	49
	340	113	51
	384	128	54
	406	135	56
	415	138	57
	416	139	58
	430	143	59
	497	166	61
Precast 14"x 14"			
	246	82	44

Pile Design Table for Pier 2 utilizing Boring #SB-6

Pile Type	Nominal Required Bearing (Kips)	Allowable Resistance Available (Kips)	Estimated Pile Length (Ft.)
Metal Shell 12"Φ w/.25" walls			
	258	86	72
	263	88	73
Metal Shell 14"Φ w/.25" walls			
	220	73	61
	237	79	63
	303	101	72
	310	103	73
Metal Shell 14"Φ w/.312" walls			
	220	73	61
	237	79	63
	303	101	72
	310	103	73
Steel HP 10 X 42			
	254	85	72
	262	87	73
Steel HP 10 X 57			
	259	86	72
	267	89	73
Steel HP 12 X 53			
	240	80	57
	241	80	61
	264	88	63
	308	103	72
	318	106	73
Steel HP 12 X 63			
	242	81	57
	243	81	61
	266	89	63
	311	104	72
	320	107	73

Pile Design Table for Pier 2 utilizing Boring #SB-6 (Continued)

Pile Type	Nominal Required Bearing (Kips)	Allowable Resistance Available (Kips)	Estimated Pile Length (Ft.)
Steel HP 12 X 74			
	246	82	57
	246	82	61
	270	90	63
	315	105	72
	325	108	73
Steel HP 12 X 84			
	249	83	57
	250	83	61
	273	91	63
	319	106	72
	329	110	73
Steel HP 14 X 73			
	289	96	61
	317	106	63
	369	123	72
	380	127	73
Steel HP 14 X 89			
	240	80	53
	293	98	61
	320	107	63
	374	125	72
	385	128	73
Steel HP 14 X 102			
	242	81	53
	296	99	61
	324	108	63
	378	126	72
	389	130	73
Steel HP 14 X 117			
	245	82	53
	299	100	61
	328	109	63
	382	127	72
	393	131	73

Piles should be driven in accordance with *Section 512. Piling,* as presented in the *Standard Specifications for Road and Bridge Construction,* adopted in January 2007 by the *Illinois Department of Transportation.*

Everest recommends one test pile per pier. The contractor should drive test piles to 110 percent of the Nominal Required Bearing specified in permanent locations at substructures specified or approved by the Engineer before ordering the remainder of piles.

In addition to vertical loads, the substructure units will be subjected to lateral loading. However, at present the magnitude and point of application, inclination of loading, allowable deflection, and structural design of the substructure units is not fully known for a detailed lateral capacity analysis. The lateral loading of a deep foundation is a soil-structure interaction problem. The deflection of the deep foundation depends on the reaction in the soil, which in turn depends upon the allowable deflection. For lateral capacity analysis, where applicable, several computer programs based upon the P-Y analysis like COM624P as discussed in Publication No. FHWA-SA-91-048 and FloridaPier (FLPIER) are available, and may be used.

The estimated properties of various strata for calculating the lateral loads are presented in *Table 3, Estimated Soil Properties.*

Table 3, Estimated Soil Properties

Soil Type	γ Unit weight (lb/ft^3)	γ' Effective Unit Weight (lb/ft^3)	Φ Angle of Internal Friction (deg)	ε_{50} Strain at 50% Stress Level	Soil Modulus		*c=q_u/2 Undrained Cohesive Strength (tsf)
					k-static (lb/in^3)	k-cyclic (lb/in^3)	
Fill (cohesive)	125	63	---	0.01	---	---	0.5
Fill (cohesion less)	125	63	30	---	---	---	---
Soft clay/silty clay/silty clay loam	115	53	---	0.02	30	---	0.1 - 0.25
Medium stiff clay/silty clay/silty clay loam	120	58	---	0.01	100	---	0.25 - 0.50
Stiff clay/silty clay/silty clay loam	125	63	---	0.007	500	200	0.50 -1.00
Very stiff clay/silty clay/silty clay loam	130	70	---	0.005	1,000	400	1.00 - 2.00
Hard clay/silty clay/silty clay loam	135	73	---	0.004	2,000	800	2.00 - 4.00
Silt/silty loam	115	53	26	---	**20/25	**20/25	---
Loose sand/sandy loam	115	53	30	---	**20/25	**20/25	---
Medium dense sand/sandy loam	125	63	33	---	**60/90	**60/90	---
Dense sand/sandy loam	130	68	38	---	**125/225	**125/225	---
*- See Soil Boring Logs, **-k for submerged sand/k for sand above water table							

5.2 Settlement

Everest does not anticipate any significant time settlement of the founding soils as a result of the proposed construction.

5.3 Slope Stability

Everest does not anticipate any slope stability problems, since no changes to side/end slopes are made for the proposed improvements.

5.4 Backfill

Select granular material such as sand is preferred as backfill. However, the project economy should be taken into account which may dictate use of other suitable materials either excavated on site or imported from a borrow area.

The excavation and backfilling should be in accordance with the requirements of *Section 502* of the *Standard Specifications for Road and Bridge Construction,* adopted in January 2007 by the *Illinois Department of Transportation.* The backfill should be placed in approximately continuous horizontal layers not more than eight (8) inches in thickness, loose measurement, and each layer should be compacted in-place in accordance with *Article 205.06* of the *Standard Specifications for Road and Bridge Construction,* adopted in January 2007 by the *Illinois Department of Transportation.* Over compaction should be avoided.

5.5 Lateral Pressures - Abutments

The lateral earth pressure exerted on the abutments will depend upon their stiffness, the type and density of the backfill placed behind and the drainage provisions. The abutments in some cases may not have sufficient movement to mobilize the shear strength of the soil and should be designed to resist an at-rest lateral earth pressure.

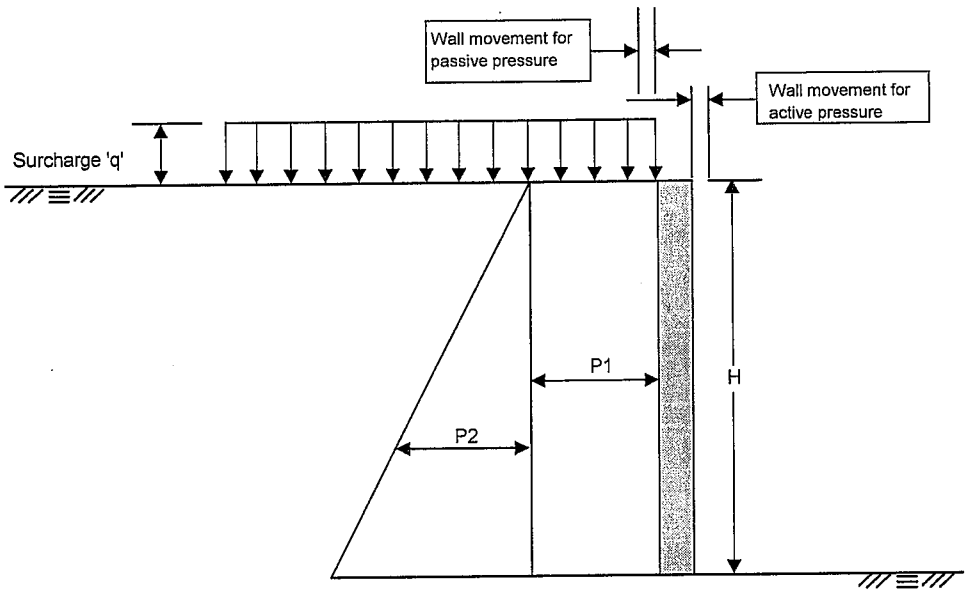


Figure 1 - Lateral Earth Pressures

The recommended lateral pressures for different soils that may be used for calculating the lateral loads are presented in *Table 4, Lateral Pressures.*

Table 4, Lateral Pressures

Lateral Pressure	Soil	Coefficient	Pressure		
			Equivalent Fluid (pcf)	Surcharge , P1 (psf)	Earth, P2 (psf)
At Rest (Ko)	Granular	0.50	60	(0.50)q	(60)H
	Clay	0.58	70	(0.58)q	(70)H
Active (Ka)	Granular	0.33	40	(0.33)q	(40)H
	Clay	0.45	54	(0.45)q	(54)H
Passive (Kp)	Granular	3.0	360	---	---
	Clay	2.2	264	---	---

The above lateral pressures are recommended for the following conditions:

- For earth pressures at rest, no wall movement assumed.
- For active earth pressure, wall must move around base, with minimum outward lateral movement at the top of 0.001H for granular soils and 0.01H for cohesive soils.
- For passive earth pressure, wall must rotate around base, with minimum inward lateral movement at the top of 0.01H for granular and cohesive soils.
- Uniform surcharge.

- Loading from the construction equipment not included.
- No groundwater acting on the wall.
- No safety factor included.
- Ignore passive pressure in frost zone.
- Backfill should be compacted in-place in accordance with project specifications.

The recommended lateral pressures are for level fills with a unit weight of 120 pcf under properly drained conditions using suitable dewatering methods, and do not consider buildup of hydrostatic pressure. The designer should take into account the increase in lateral pressure due to the differing unit weight of backfills, surcharge, sloping backfills, hydrostatic pressures, vehicular loading, and/or any other loadings not known to Everest at this time.

5.6 Drainage

To reduce the build up of hydrostatic pressure behind the abutments it is preferred that a free draining granular material be used as backfill. The drainage system may consist of geocomposite wall drain or weep holes. The geocomposite drain may be as described in *Article 591, Geocomposite Wall Drains,* in the *Standard Specifications for Road and Bridge Construction,* adopted January 2007. In case it is decided to use weepholes to mitigate the hydrostatic pressure, the weepholes may be approximately 3 inch in diameter, spaced approximately 8 feet apart horizontally and 6 feet apart vertically. The weepholes should be protected on the soil side by using a properly designed granular filter, to avoid migration of fines, resulting in blockage of the weepholes.

5.7 Seismic Design Data

According to the *AASHTO* and *IDOT Geotechnical Manual, Horizontal Bedrock Acceleration Map* for the *Sate of Illinois,* the seismic parameters for the ASD method are:

- Seismic Performance Category (SPC) = A
- Bedrock Acceleration Coefficient = 0.037g
- Site Coefficient (S) = 1.0

Based on the results of the subsurface investigation, liquefaction of the granular soils is not anticipated.

5.8 Abandoned Mines

No former mining activity is indicated near the project location in the available ISGS records.

6. CONSTRUCTION CONSIDERATIONS

6.1 Seepage

Some seepage and associated caving of materials should be expected during construction. For shallow excavations, normal sump and pump dewatering methods should be adequate to keep excavations dry during construction. Any soil that has been softened by water should be removed prior to placing any fills and/or concrete.

6.2 Safety

The Health and Safety Act of the State of Illinois, together with the related Health and Safety Rules, all federal requirements, area specifications for excavation and slopes, and all other ordinances, statutes or building codes relating to construction operations and/or temporary sheeting and bracing of trenches and excavations must be observed.

6.3 Excavation Slopes

No major excavation is anticipated at this site, however the soils on this site should not be excavated with side slopes steeper than two and one-half horizontal to one vertical (2.5H:1V), unless temporary sheeting and bracing are used. Piles of excavated soil and heavy construction equipment should not be permitted closer to the top of any excavation than a distance equal to two times the depth of the excavation, in order to reduce the possibilities of cave-ins. Everest understands that temporary soil supports such as sheet piles will not be needed for the proposed improvements.

7. GENERAL

Soil conditions can change with the passage of time due to changes in the elevation of the groundwater table, changes in climatic conditions and other factors not evident at the time of this report. Also, undetected subsurface variations can exist at locations between the borings, due to variations in the fill materials and the time of deposition. For these reasons, any soft areas or soil conditions believed to be different than those described herein, which are revealed during construction should be further investigated.

The information in Section 6 of this report has been provided for use by the designers and field inspection personnel. It is not intended to be a complete description of geotechnical conditions that might affect anticipated construction operations.

Respectfully submitted,
Everest Engineering Company

Jagan N. Gosain, P.E.
Chairman

APPENDICES

GENERAL NOTICES

GENERAL NOTICES

1. WARRANTY

The Geotechnical Engineer has prepared this report in accordance with generally accepted geotechnical engineering practices and makes no other warranties either expressed or implied. In no event does the Geotechnical Engineer accept any liability beyond the extent of fee collected for this work.

2. SOIL & ROCK DESCRIPTIONS

Unless otherwise noted, the soil and/or rock descriptions indicated on the boring logs are visual identifications and, generally, are not the result of laboratory identification testing. As such, they may not conclusively represent exact subsurface conditions. The soil and/or rock identifications indicated on the boring logs are based upon examination of samples in the field or delivered to the laboratory, and interpretation of field observations during drilling, and may not completely represent conditions in the ground.

Soil and/or rock samples are retained in our laboratory for ninety days and are then destroyed unless special disposition is requested by our client.

3. UNANTICIPATED SOIL & ROCK CONDITIONS

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings and/or rock cores performed at the specific locations indicated, and subsequent laboratory testing of these samples. This yields a representative, but not necessarily exhaustive, picture of the subsurface conditions. The possibility of variations from expected conditions increases with spacing between borings and frequently requires that additional information be obtained to attain a properly constructed project. The Geotechnical Engineer should be contacted whenever unanticipated conditions are encountered, as these unanticipated conditions may alter conclusions and recommendations contained in the report.

4. CHANGED CONDITIONS

It is recommended that all construction contracts relating to foundations and earthwork include a *changed conditions* clause to establish procedures to be followed should unanticipated conditions be encountered.

No claim by the contractor for any conditions differing from those anticipated in the plans and specifications and indicated by the original geotechnical studies should be allowed unless the contractor has so notified the owner, verbally and in writing of such change in conditions. It is further recommended that all foundation work and site improvements be inspected by a Registered Professional Engineer with substantial experience in Geotechnical Engineering.

5. CHANGED STRUCTURE OR LOCATIONS

This report has been prepared to aid in the evaluation of this project and to assist the architect and/or engineer in the design of this project. In the event that any changes, however slight, in the design or location of the structure as outlined in this report are planned, or any structures are included or added that are not discussed in this report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or approved in writing by the Geotechnical Engineer.

6. OBSERVATIONS DURING DRILLING

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water, boulders, hazardous or toxic material, gas, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, odors, obstructions, etc.; however, lack of mention does not preclude their presence.

7. BOULDERS, COBBLES AND GRAVEL

Boulders, cobbles and coarse gravel cannot be accurately observed or measured without special, large diameter borings and special samplers. Therefore, their absence from the boring logs does not preclude their existence.

8. LOCATION OF BURIED OBJECTS

All users of this report are cautioned that no attempt was made by the Geotechnical Engineer to locate any man-made buried objects during the course of this investigation. The Geotechnical Engineer can not be responsible for any buried man-made objects that are encountered during construction that are not discussed in the text of this report. The contractor is reminded to contact all utility companies to verify underground service locations, prior to any excavation work.

9. GROUNDWATER LEVELS

Groundwater level readings have been made in the bore holes at times and under conditions stated on the boring logs. Groundwater levels may not have stabilized at the last reading and show only the conditions observed at the time that the borings were drilled, unless otherwise noted. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, runoff, infiltration, land use, area lake/stream levels, temperature, and other factors not evident at the time measurements were made and reported herein. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions of variations.

10. USE OF REPORT BY BIDDERS

Bidders who are examining this report prior to submitting a bid are cautioned that this report was prepared as an aid to the designers of the project and it is not intended to reflect subsurface conditions as they may affect actual constructions operations.

11. STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs and soil profiles which accompany this report. However, actual change in the ground may be gradual. Where changes occur between soil samples, the location of the changes are estimated using all available information and may not be shown at the exact actual depth.

12. CONSTRUCTION FOLLOW-UP

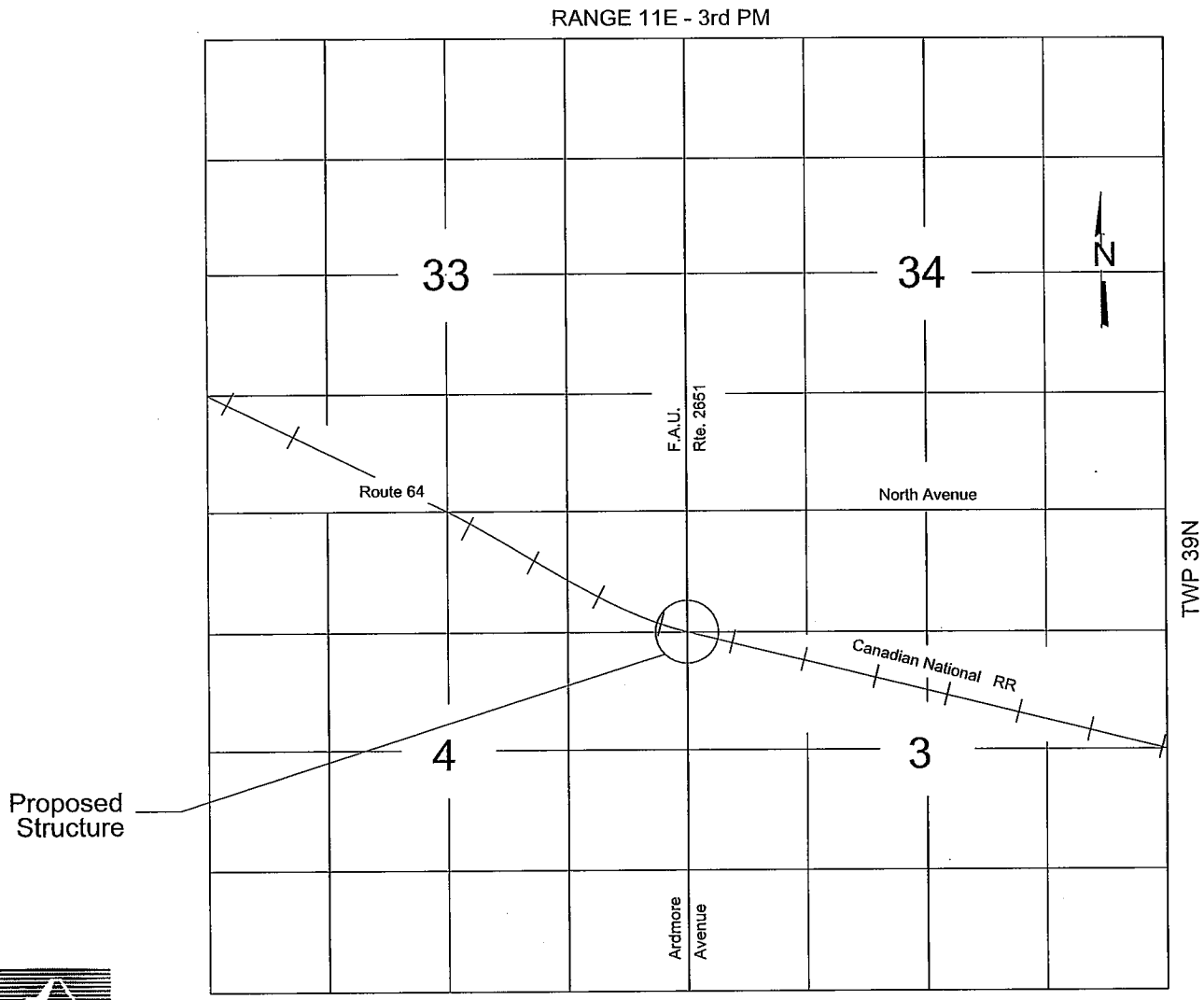
It is recommended that during construction of all foundation work and site improvements a qualified Geotechnical Engineer be retained to assure compliance with the recommendations contained in this report and with project specifications and to assist with making necessary field adjustments and to document changed conditions.

Everest Engineering Company would welcome the opportunity to provide continuous on-site geotechnical services during excavation, backfilling, compaction, foundation preparation, and paving operations, etc.

EXHIBIT 1, PROJECT LOCATION MAP

179

EXHIBIT 1



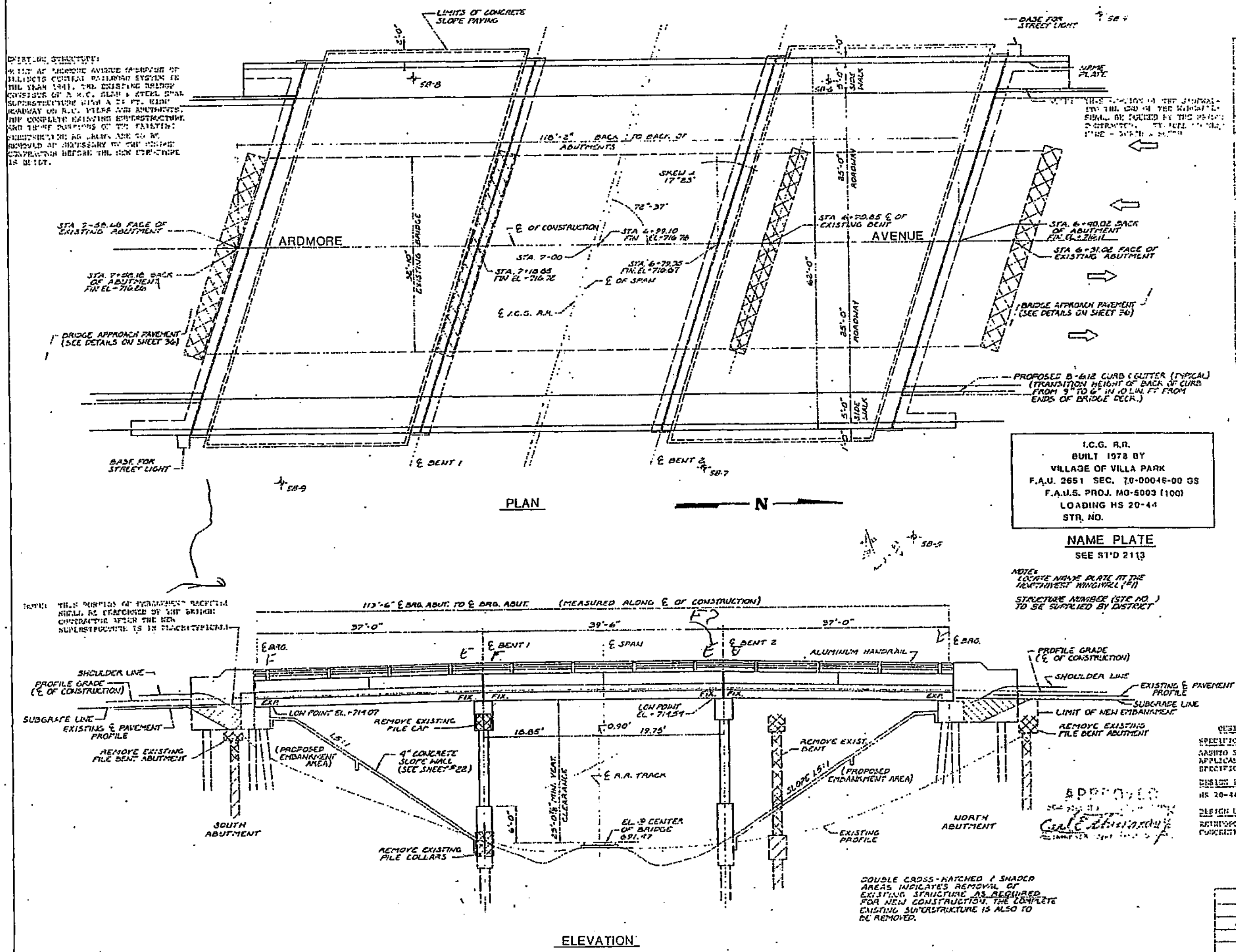
PROLECT LOCATION MAP
ARDMORE AVENUE OVER
CANADIAN NATIONAL RAILROAD
F.A.U. Rte. 2651 SEC. 76-00046-00 GS
DUPAGE COUNTY
STATION 104+50.70
STRUCTURE NO. 022-6930

EVEREST ENGINEERING COMPANY

SHEET NO	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	2651	76-00046-00 GS	DUPAGE	_	
			CONTRACT NO.		
	FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

EXHIBIT 2, GENERAL BRIDGE PLAN

EXHIBIT 2



TOTAL BRIDGE BILL OF MATERIALS

ITEM	UNIT	SUPER-STRUCTURE	SUB-STRUCTURE	TOTAL
BITUMINOUS CONCRETE SURFACE COURSE, MIXTURE D, CLASS I.	TON	110		110
REMOVAL OF EXISTING STRUCTURE	LUMP SUM			1
PROTECTIVE COAT	SQ. YD.	208		208
CLASS X CONCRETE	CU. YD.	68	307	375
PRECAST PRESTRESSED CONCRETE DECK BEAMS (27")	SQ. FT.	7,103		7,103
ALUMINUM RAILING, TYPE L	LIN. FT.	230		230
REINFORCEMENT BARS	POUNDS	545	32,675	33,220
REINFORCEMENT BARS, EPOXY COATED	POUNDS	5,255	360	5,615
FURNISHING METAL PILE SHELLS, 12"	LIN. FT.		462	462
FURNISHING METAL PILE SHELLS, 14"	LIN. FT.		2372	2372
DRIVING AND FILLING SHELLS	LIN. FT.		[illegible]	[illegible]
TEST PILE METAL SHELLS	EACH		3	3
NAME PLATES	EACH	1		1
SLOPE WALL, 4 INCH	SQ. YD.		[illegible]	[illegible]
WATERPROOFING MEMBRANE SYSTEM	SQ. YD.	650		650
[illegible]	LIN. FT.	130		130
[illegible]	LIN. FT.	[illegible]		1500

GENERAL NOTES

1. SEE SPECIAL PROVISIONS FOR BORING DATA.
2. ALL STRUCTURAL STEEL SHALL BE SHOP PAINTED WITH TWO COATS OF BASIC LEAD SILICO CHROMATE PAINT.
3. EXPANSION GUARDS WHICH ARE NOT CAST IN THE PRECAST UNIT SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH ARTICLE 503.07(c) OF THE STANDARD SPECIFICATIONS. THE COST SHALL BE INCLUDED IN THE UNIT BID PRICE FOR PRECAST PRESTRESSED CONCRETE BRIDGE DECK.
4. SLOPE WALL SHALL BE REINFORCED WITH WELDED WIRE FABRIC 6" x 6" MESH. WEIGHING 58# PER 100 SQ.FT.
5. THE CONTRACTOR SHALL DRIVE 1 METAL SHELL TEST PILE IN A PERMANENT LOCATION AT THE NORTH ABUTMENT AND 1 METAL SHELL TEST PILE IN A PERMANENT LOCATION AT BENTS #1 AND #2 AS DIRECTED BY THE ENGINEER BEFORE ORDERING THE REMAINDER OF THE PILES.
6. CONCRETE PILES AT ABUTMENTS SHALL BE DRIVEN IN HOLES PRECORED THROUGH THE EMBANKMENT IN ACCORDANCE WITH ARTICLE 513.09(c) OF THE STANDARD SPECIFICATIONS.
7. THE TOP SURFACE OF THE BEAMS SHALL BE FINISHED IN ACCORDANCE WITH ARTICLE 505.06 OF THE STANDARD SPECIFICATIONS EXCEPT THAT THE SURFACE SHALL NOT BE ROUGHENED BY BROOMING. THE FINISHED SURFACE SHALL BE FREE OF DEPRESSIONS OR HIGH SPOTS WITH SHARP CORNERS.
8. THE EMBANKMENT CONFIGURATION SHOWN SHALL BE THE MINIMUM EMBANKMENT THAT MUST BE CONSTRUCTED PRIOR TO CONSTRUCTION OF THE ABUTMENTS.
9. THE CONCRETE RAIL SECTION ABOVE THE MANDATORY CONSTRUCTION JOINT AT THE TOP OF THE SIDEWALK SHALL BE CONSTRUCTED OF CLASS X CONCRETE, EXCEPT THE AGGREGATES SHALL CONFORM TO THE REQUIREMENTS OF HANDRAIL CONCRETE.
10. PROTECTIVE COAT SHALL NOT BE APPLIED TO SURFACES TO WHICH WATERPROOFING MEMBRANE SYSTEM IS APPLIED.

DESIGN DATA

SPECIFICATIONS

AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES - 1973
APPLICABLE INTERIMS AND ALL APPLICABLE I.D.H. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION - 1976

DESIGN LOADING

HS 20-44

ILLINOIS DIVISION OF HIGHWAYS

GENERAL BRIDGE PLAN

ARDMORE AVENUE BRIDGE

REVISIONS	
NAME	DATE
D.C.N.	1-30-78

DRAWN BY: D.C.N.

DATE 12-28-77

CHECKED BY: G.A.

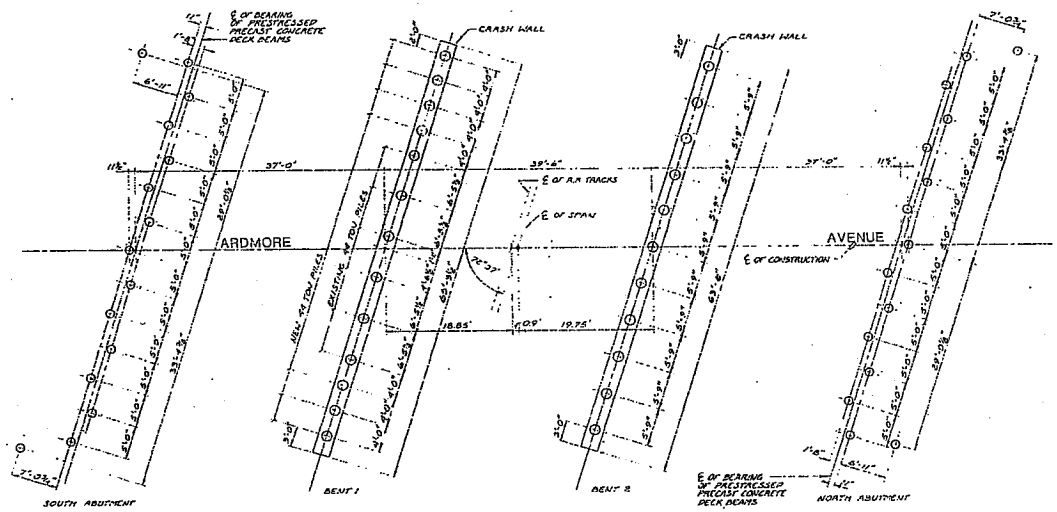
F.A.U.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2651	70-00046-00-GS	DU PAGE	36	14

EXHIBIT 3, PILE PLAN

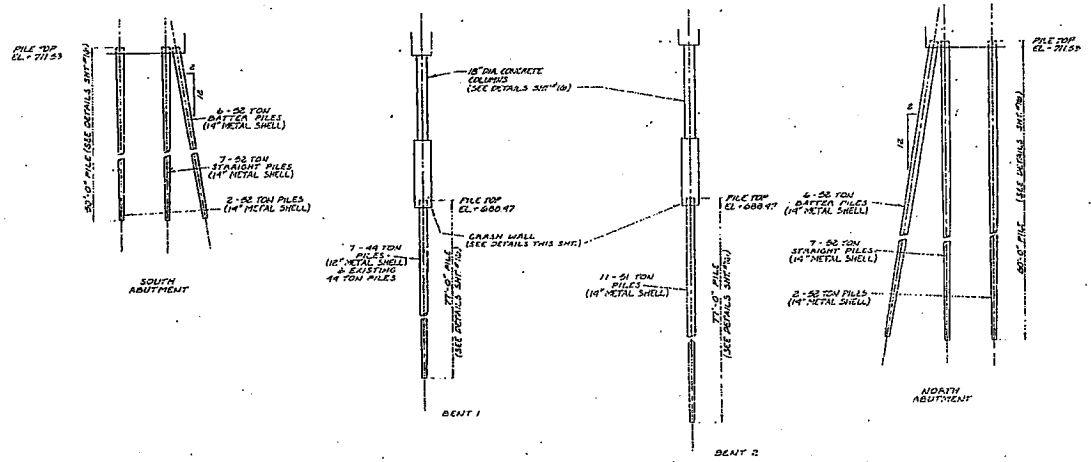
EXHIBIT 3

0115-15

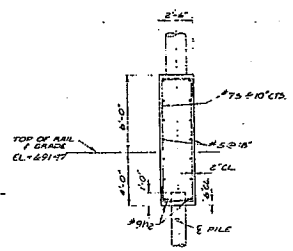
FAP RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAU 7276/0602-2 (602)100-13		DUPAGE	36	15
STA.		TO STA.		
FAS ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT NO. 0602(100)	



PILE PLAN



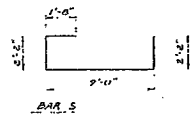
ELEVATION

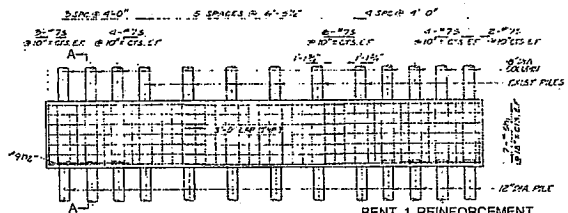


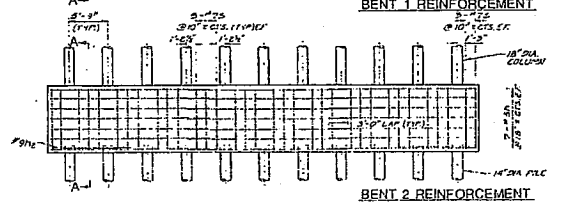
SECTION A-A

BENT #1 & #2 CRASH WALL
BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
h	46	#3	23'-0"	
h_1	92	#3	23'-8"	
h_2	8	#9	12'-0"	
s	239	#7	15'-0"	
CLASS X CONCRETE			CU. YDS.	120
REINFORCEMENT BARS			POUNDS	11,670







CRASH WALL ELEVATIONS

ILLINOIS DIVISION OF HIGHWAYS

PILE PLAN

ARDMORE AVENUE BRIDGE

SCALE: AS SHOWN	DRAWN BY: D.C.H.
DATE: 4-28-77	CHECKED BY: G.A.S.

DESIGNED	DATE
D.C.H.	7-30-76

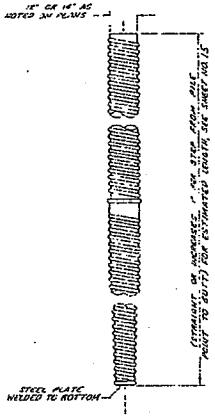
0115-15

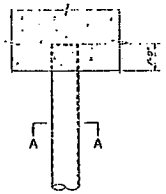
EXHIBIT 4, PILE DETAILS

EXHIBIT 4

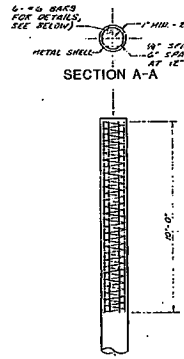
0115-16

SHT	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 331-00C(RR)-1001,100-C3		DUPAGE	36	16
F.A.		STATE		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT 5003(00)		

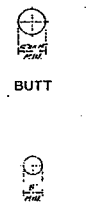




REINFORCEMENT IS INCIDENTAL TO THE COST OF FURNISHING PILES.

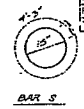


AT LEAST 10% OF THE LENGTH OF PILE SHALL HAVE A BUTT DIAMETER EQUAL TO OR GREATER THEN 12" OR 14". THE THICKNESS OF THE SHELL SHALL BE 0.1793 IN. FOR 12 in. PILES AND 0.214" FOR 14 in. PILES.



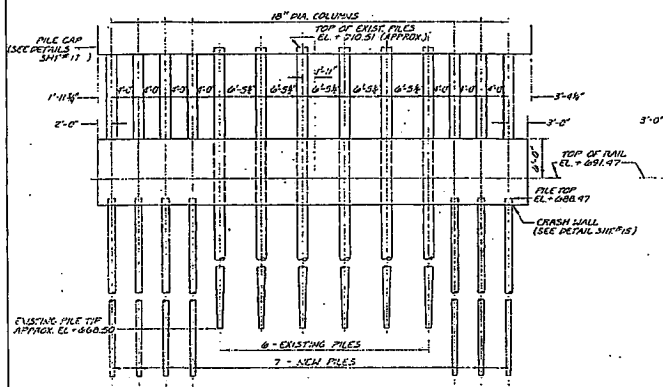
COLUMN
BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
V	56	#4	83'-0"	
V1	9	#4	5'3"	SPIRAL
S	144	#4	4'-3"	
V2	88	#8	84'-0"	
V3	11	#4	22'-0"	SPIRAL
METAL PILE SHELLS 12"			LIN. FT.	4447
METAL PILE SHELLS 14"			LIN. FT.	2,377
CLASS X CONCRETE (COLUMN)			CU. YDS.	46
REINFORCEMENT (COLUMN)			POUNDS	14,900
TEST PILES			EACH	3

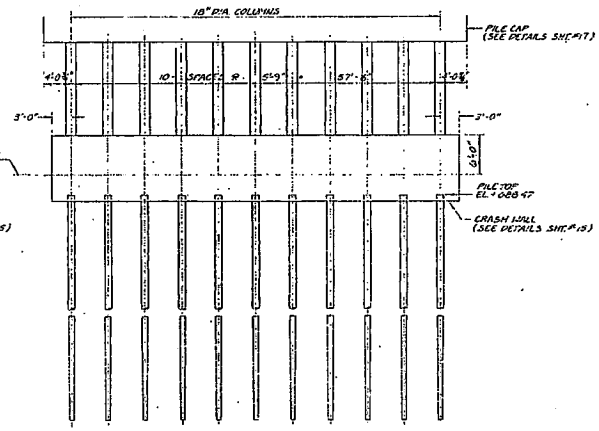


DETAIL OF MANDREL DRIVEN
STRAIGHT OR STEP-TAPER PILES

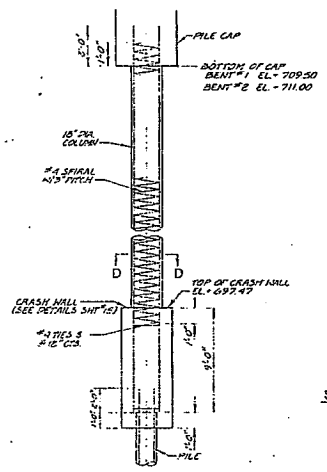
NOTE : See Sheet No. 16A for additional pile details.



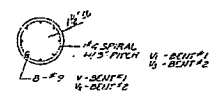
BENT #1
(LOOKING NORTH)



BENT #2
(LOOKING NORTH)



COLUMN DETAIL



SECTION D-D

DESIGNED	
NAME	DATE
D.C.H.	11-30-78

ILLINOIS DIVISION OF HIGHWAYS

PILE DETAILS

ARDMORE AVENUE BRIDGE

SCALE: NONE — DRAWN BY: D.C.H.

DATE: 12-28-77 — CHECKED BY: G.A.S.

0115-16

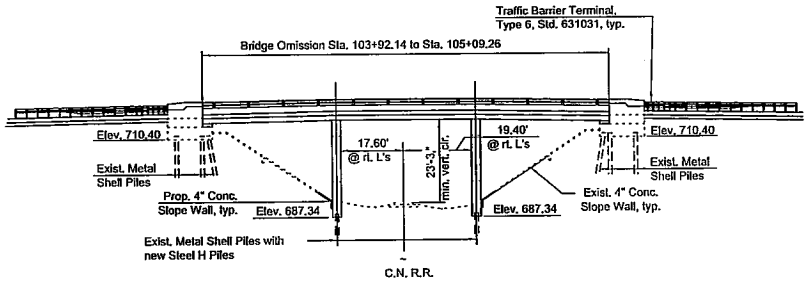
EXHIBIT 5, GENERAL PLAN

EXHIBIT 5

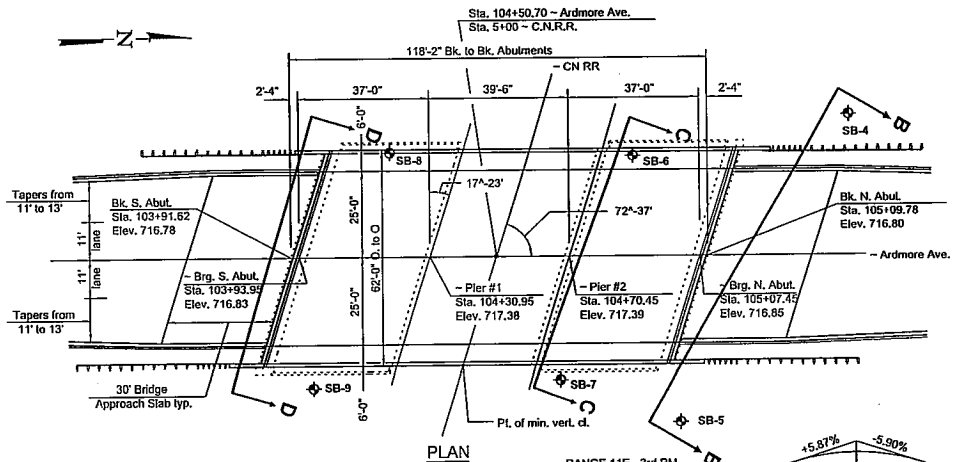
Bench Mark: SBM #1: Cut square in light standard base (southwesterly). First light standard base north of Ardmore Bridge on the east side of Ardmore Avenue. Elevation 708.73 (measured) NGVD29.

Existing Stucture: SN 022-6930 was built in 1978 as F.A.U. Route 2651 replacing an existing structure. The stucture is a three simple span (37'-0", 39'-6", 37'-0") 17" PPC Deck Beam bridge supported by stub abutments and pile bent piers. The existing structure is 118'-2" back to back of abutments and out to out of deck is 62'-0" with 50'-0" clear width and a 6'-0" sidewalk and paraper each side. The bridge will be closed to traffic during reconstruction.

No Salvage

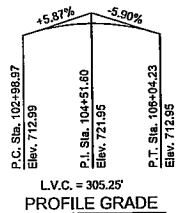


ELEVATION

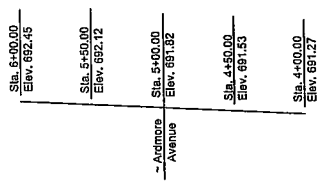


PLAN

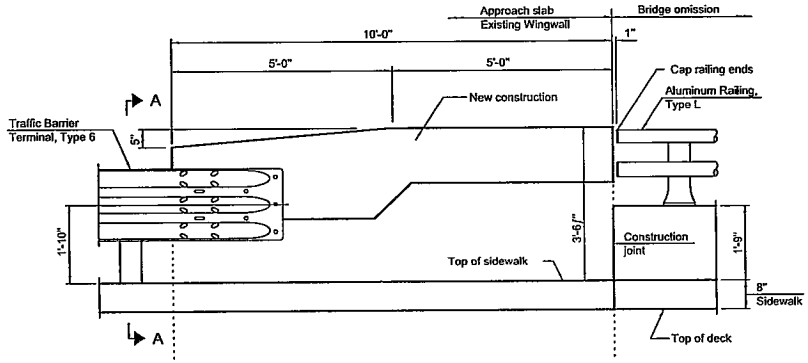
LOCATION SKETCH



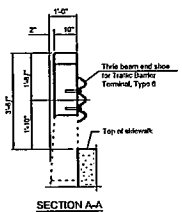
PROFILE GRADE
(along ~ of Roadway)



PROFILE GRADE
Top of rail along ~ track
(Looking North)



TYPE 6 RAIL ATTACHMENT DETAIL



SECTION A-A

SEISMIC DATA

Seismic Performance Category (SPC) = A
Bedrock Acceleration Coefficient (A) = 0.037g
Site Coefficient (S)= 1.0

HIGHWAY CLASSIFICATION

FAU Rte. 2651-Ardmore Avenue
Functional Class: Collector (Urban)
ADT: 10,200 (2005); 12,000 (2030)
ADTT: 560 (2030)
DHV: 1200
Design Speed: 25 m.p.h.
Posted Speed: 25 m.p.h.

LOADING HS 20-44 (NEW CONST.)
LOADING HS 20-44 (EXIST. CONST.)
No allowance for future wearing surface.

DESIGN SPECIFICATIONS

NEW CONSTRUCTION

2007 AASHTO LFD Bridge Design Specifications with 2008 and 2009 Interims

EXISTING CONSTRUCTION

1971 AASHTO LFD Bridge Design Specifications and applicable Interims

DESIGN STRESSES

NEW CONSTRUCTION

FIELD UNITS

f'c = 3,500 psi
f'c = 5,000 psi (CWS only)
fy = 60,000 psi (Reinforcement)

PRECAST PRESTRESSED UNITS

f'c = 6,000 psi
f'ci = 5,000 psi
fpu = 270,000 psi (1/2") lowlax strands)
fpbt = 201,960 psi (1/2") lowlax strands)

EXISTING CONSTRUCTION

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

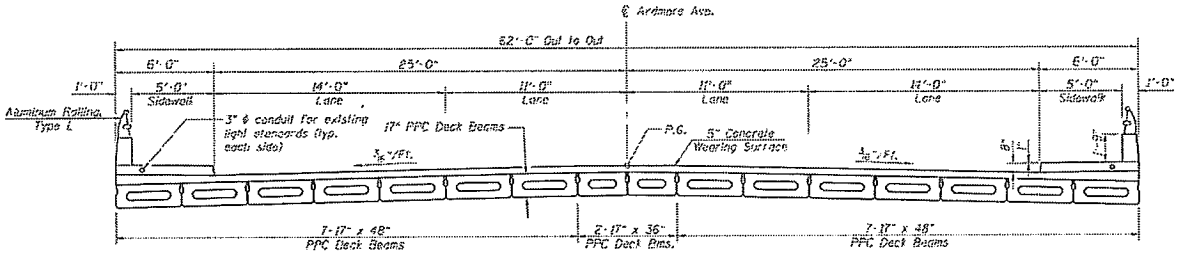
GENERAL PLAN
ARDMORE AVENUE OVER
CANADIAN NATIONAL RAILROAD
F.A.U. Rte. 2651 SEC. 76-00046-00 GS
DUPAGE COUNTY
STATION 104+50.70
STRUCTURE NO. 022-6930

SHEET NO. 1	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2 SHEETS	2651	76-00046-00 GS	DUPAGE	_	
			CONTRACT NO.		
	FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

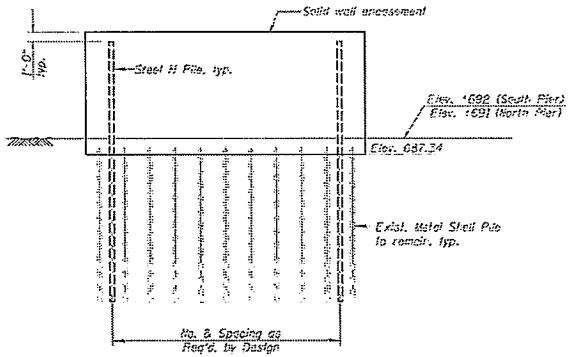
181

EXHIBIT 6, DETAILS

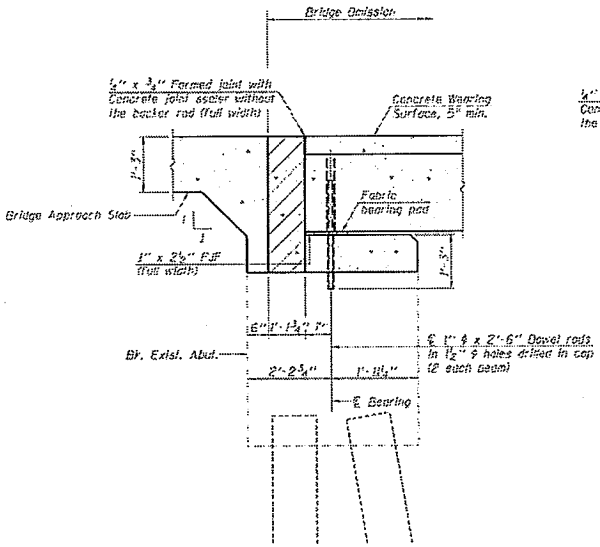
EXHIBIT 6



CROSS SECTION

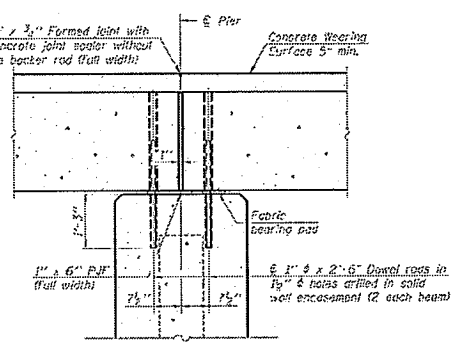


PIER SKETCH



SECTION THRU EXISTING ABUTMENT

(Dimensions are at Rt. L's)



* 1" Joint shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam length.

SECTION AT PIERS

(Dimensions are at Rt. L's)

DETAILS
ARDMORE AVENUE OVER
CANADIAN NATIONAL RAILROAD
F.A.U. Rte. 2651 SEC. 76-00046-00 GS
DUPAGE COUNTY
STATION 104+50.70
STRUCTURE NO. 022-6930

V3 Companies of Illinois Ltd.
7325 Janes Avenue
Woodridge, IL 60517
630.724.9200 phone
630.724.9202 fax
www.v3co.com

SHEET NO. 2	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2 SHEETS	2651	76-00046-00 GS	DUPAGE	-	
			CONTRACT NO.		
	FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

581

SOIL IDENTIFICATION TERMINOLOGY

SOIL IDENTIFICATION TERMINOLOGY

Soils are identified and classified in this report according to the AASHTO/IDH Classification system with the following modifiers:

RELATIVE DENSITY OF GRANULAR SOILS

DESCRIPTION	BLOWS PER FOOT
VERY LOOSE	0 TO 4
LOOSE	4 TO 10
MEDIUM DENSE	10 TO 30
DENSE	30 TO 50
VERY DENSE	50 TO 80
EXTREMELY DENSE	80+

CONSISTENCY OF COHESIVE SOILS

DESCRIPTION	Qu (tsf)
VERY SOFT	0 TO 0.25
SOFT	0.25 TO 0.50
MEDIUM	0.50 TO 1.0
STIFF	1.0 TO 2.0
VERY STIFF	2.0 TO 4.0
HARD	4.0 TO 8.0
VERY HARD	8.0+

PARTICLE SIZES

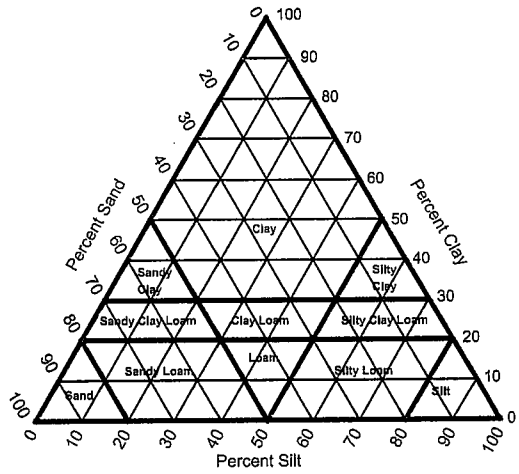
COMPONENT	SIZE
BOULDERS (COBBLES)	3 Inch+
GRAVEL	*No. 10 TO 3 Inch
SAND - COARSE	*No. 40 TO No. 10
SAND - FINE	*No. 200 to No. 40
FINES - SILT AND CLAY	*BELOW No. 200

* DENOTES U.S. STANDARD SIVES (ASTM E-11)

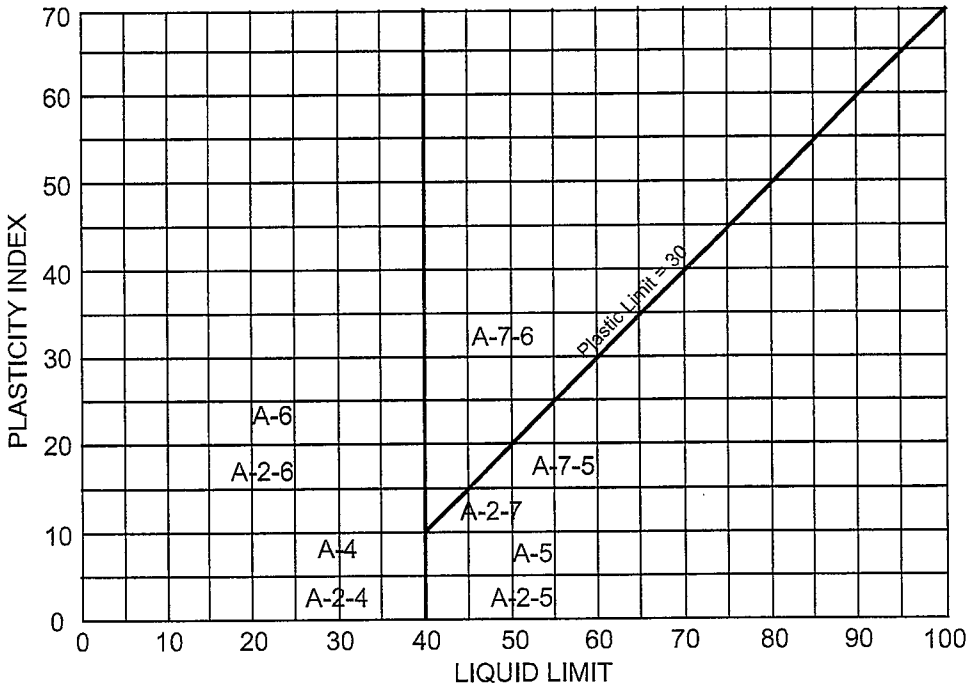
RELATIVE PROPORTIONS

DESCRIPTIVE TERM	PERCENT BY WEIGHT
TRACE	0 TO 10
LITTLE	10 TO 20
SOME	20 TO 35
AND	35 TO 50

IDH TEXTURAL CLASSIFICATION CHART



AASHTO PLASTICITY CHART



Note: A-2 Soils contain less than 35 percent finer than the 0.075 mm (No. 200) Sieve.

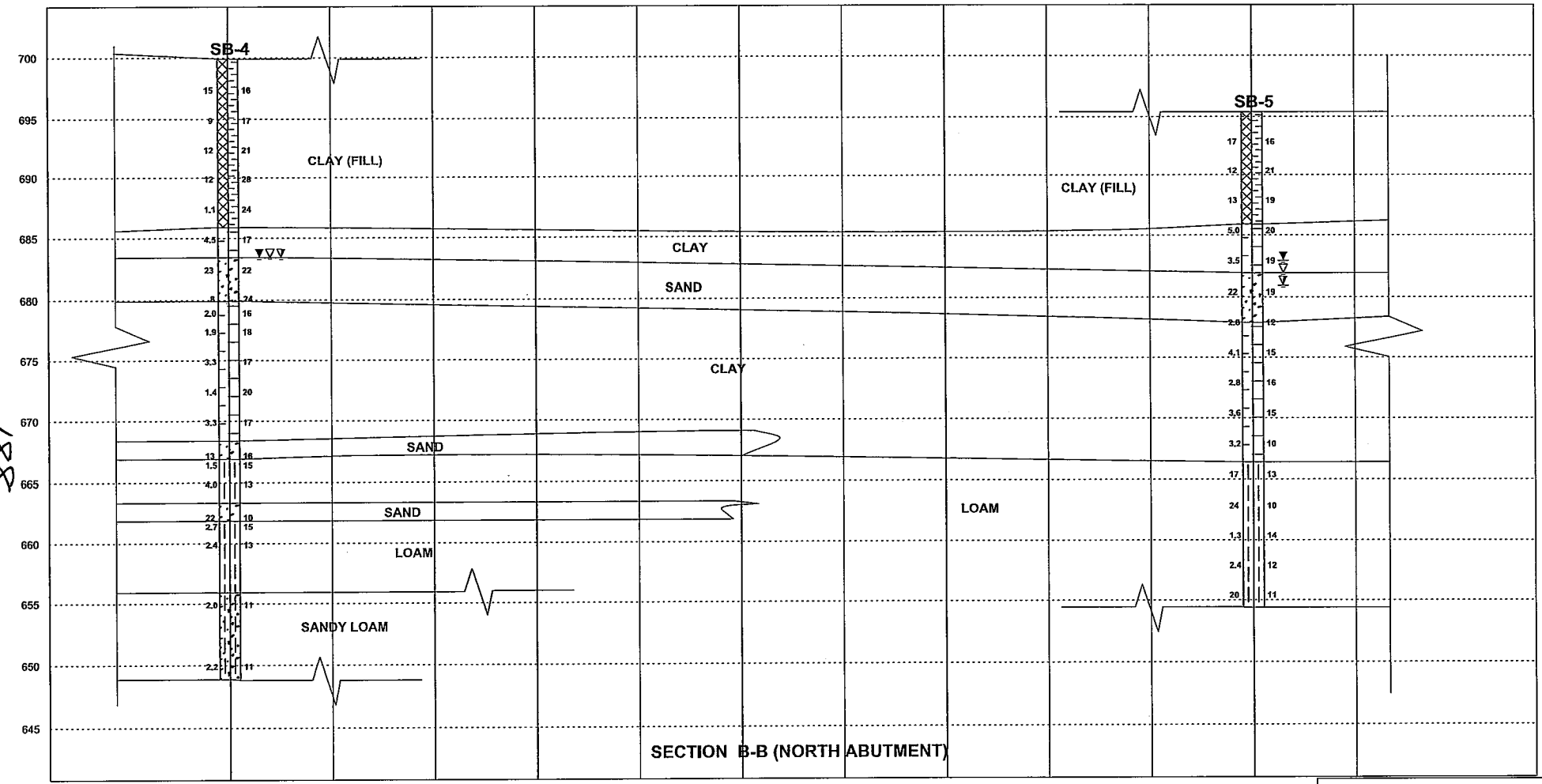
Classification of Soils and Soil-Aggregate Mixtures

General Classification	Granular Materials (35 Percent or Less Passing 0.075 mm)							Silt-Clay Materials (More Than 35 Percent Passing 0.075 mm)			
Group Classification	A-1		A-3	A-2							A-7
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7-5 A-7-6
Sieve Analysis Percent Passing:											
2.00 mm (No. 10)	50 max.	—	—	—	—	—	—	—	—	—	—
0.425 mm (No. 40)	30 max.	50 max.	51 min.	—	—	—	—	—	—	—	—
0.075 mm (No. 200)	15 max.	25 max.	10 max.	35 max.	35 max.	35 max.	35 max.	36 min.	36 min.	36 min.	36 min.
Characteristics of Fraction Passing 0.425 mm (No. 40)											
Liquid Limit	—		—	40 max.	41 min.	40 max.	41 min.	40 max.	41 min.	40 max.	41 min.
Plasticity Index	6 max.		NP	10 max.	10 max.	11 min.	11 min.	10 max.	10 max.	11 min.	11 min.[a]
Usual Types of Significant Constituent Materials	Stone Fragments, Gravel and Sand		Fine Sand	Silty or Clayey Gravel and Sand				Silty Soils		Clayey Soils	
General Rating as Subgrade	Excellent to Good							Fair to Poor			

[a] Plasticity Index of A-7-5 subgroup is equal to or less than LL minus 30. Plasticity Index of A-7-6 subgroup is greater than LL minus 30.

EXHIBITS 7, 8 AND 9, GENERALIZED SUBSURFACE PROFILE

EXHIBIT 7



881

SECTION B-B (NORTH ABUTMENT)

LEGEND

- TOPSOIL
- CLAY FILL
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CLAY
- SILTY CLAY
- SILTY CLAY LOAM
- CLAY LOAM
- SILT
- SILTY LOAM
- SAND
- SANDY LOAM
- SANDY CLAY LOAM
- LOAM
- SAND AND GRAVEL
- TOP OF ROCK
- WATER LEVEL WHEN DRILLING
- WATER LEVEL AT COMPLETION
- WATER LEVEL 24 HRS. AFTER COMPLETION

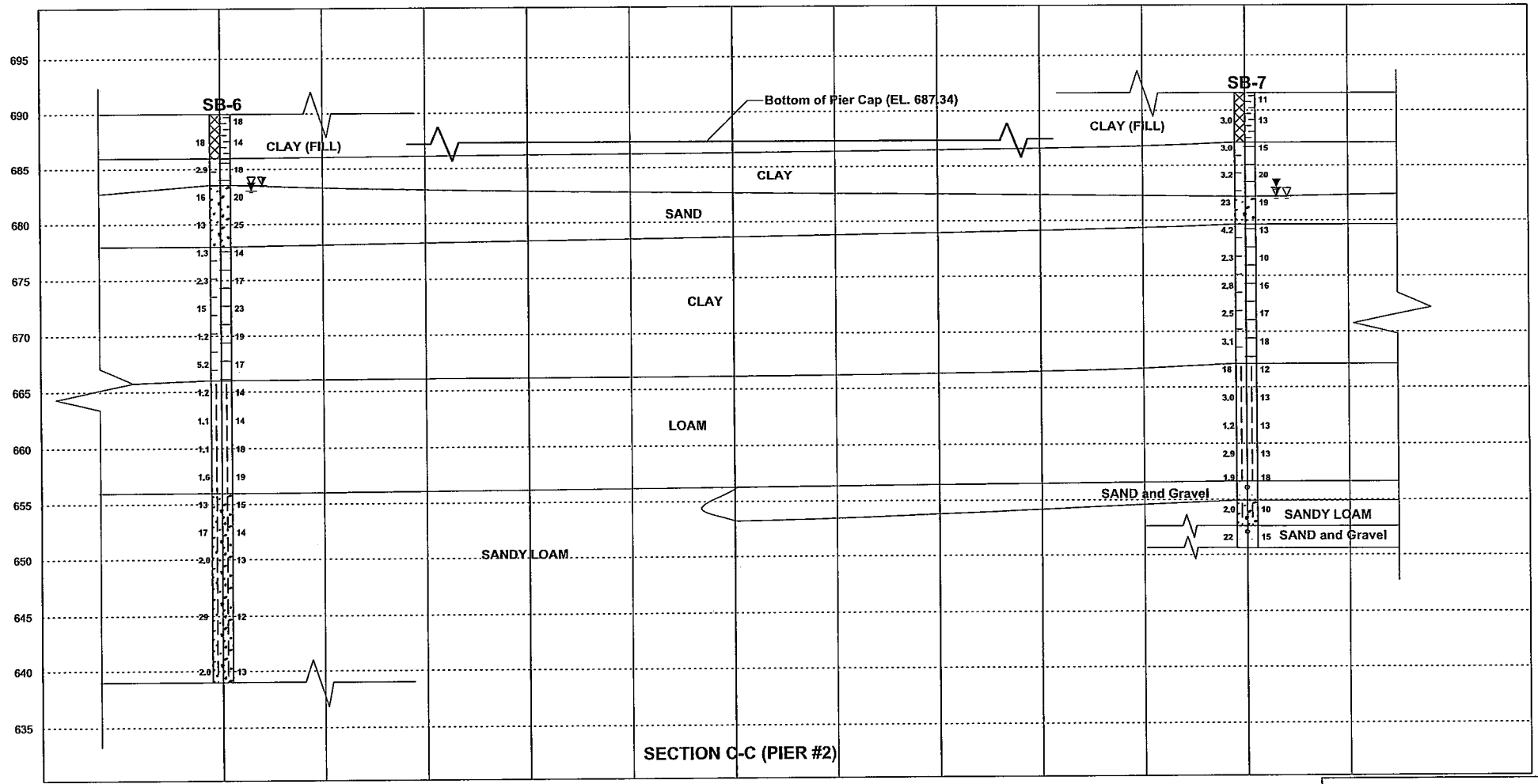
"N" VALUE OR q u (tsf) — 15 1.5 — SB-1 BORING NO.
18 WATER CONTENT (%)

EVEREST ENGINEERING COMPANY
JOB NO. 1149 DATE: 3/31/2010

GENERALIZED SUBSURFACE PROFILE

ARDMORE AVENUE OVER
CANADIAN NATIONAL RAILROAD
F.A.U. Rte. 2651 SEC. 76-00046-00 GS
DUPAGE COUNTY
STATION 104+50.70
STRUCTURE NO. 022-6930

EXHIBIT 8



LEGEND

- TOPSOIL
- CLAY FILL
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CLAY
- SILTY CLAY
- SILTY CLAY LOAM
- CLAY LOAM
- SILT
- SILTY LOAM
- SAND
- SANDY LOAM
- SANDY CLAY LOAM
- LOAM
- SAND AND GRAVEL
- TOP OF ROCK
- WATER LEVEL WHEN DRILLING
- WATER LEVEL AT COMPLETION
- WATER LEVEL 24 HRS. AFTER COMPLETION

SB-1 — BORING NO.
"N" VALUE OR q u (tsf) — 15 1.5
18 — WATER CONTENT (%)

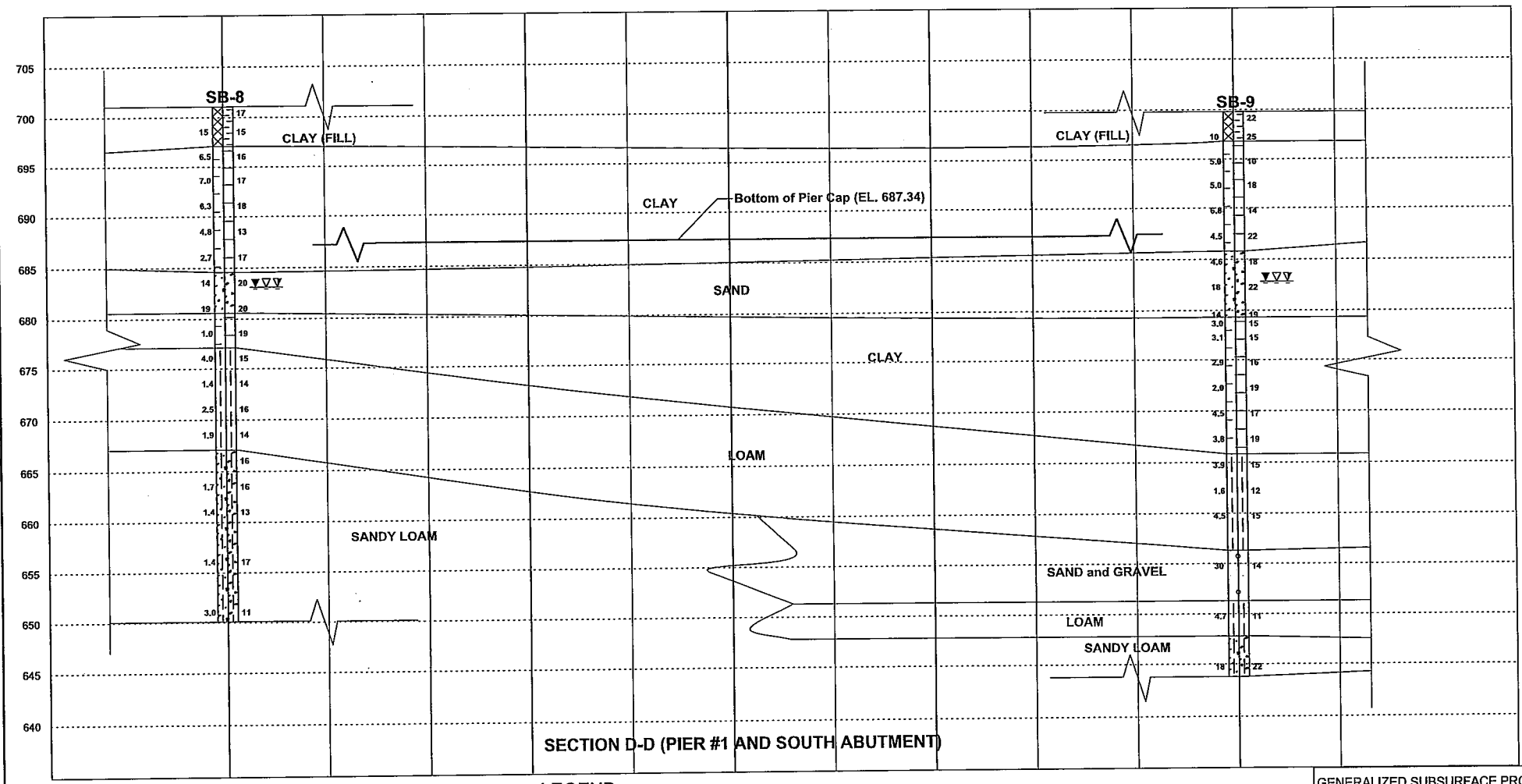
EVEREST ENGINEERING COMPANY
JOB NO. 1149 DATE: 3 31/2010

GENERALIZED SUBSURFACE PROFILE

ARDMORE AVENUE OVER
CANADIAN NATIONAL RAILROAD
F.A.U. Rte. 2651 SEC. 76-00046-00 GS
DUPAGE COUNTY
STATION 104+50.70
STRUCTURE NO. 022-6930

681

EXHIBIT 9



SECTION D-D (PIER #1 AND SOUTH ABUTMENT)

LEGEND

- TOPSOIL
- CLAY FILL
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CLAY
- SILTY CLAY
- SILTY CLAY LOAM
- CLAY LOAM
- SILT
- SILTY LOAM
- SAND
- SANDY LOAM
- SANDY CLAY LOAM
- LOAM
- SAND AND GRAVEL
- TOP OF ROCK
- WATER LEVEL WHEN DRILLING
- WATER LEVEL AT COMPLETION
- WATER LEVEL 24 HRS. AFTER COMPLETION

SB-1 ← BORING NO.
"N" VALUE OR q u (tsf) → 15 1.5
18 ← WATER CONTENT (%)

EVEREST ENGINEERING COMPANY
JOB NO. 1149 DATE: 3 31 2010

GENERALIZED SUBSURFACE PROFILE

ARDMORE AVENUE OVER
CANADIAN NATIONAL RAILROAD
F.A.U. Rte. 2651 SEC. 76-00046-00 GS
DUPAGE COUNTY
STATION 104+50.70
STRUCTURE NO. 022-6930

BORING LOGS

CLAUDE H. HURLEY COMPANY — 475 SPRING ROAD — ELMHURST, ILLINOIS 60126

BORING LOG

PROJECT NO. 1-644 — BORING NO. SB-4

PROJECT ARDMORE AVENUE OVERHEAD HIGHWAY BRIDGE

LOCATION BRIDGE (STRUCTURE) 6+17 (STATION) 40'R (OFFSET) ARDMORE AVENUE (STREET) VILLA PARK, ILLINOIS (CITY, STATE)

DRILLING CONTRACTOR TEST-COR, INC.

DATE OF DRILLING: STARTED 10-13-76 COMPLETED 10-13-76 SURFACE ELEVATION 699.9

DRILLED BY D. JEDLICKA — LOGGED BY K. SWANSON

GROUNDWATER DATA

	DATE	DEPTH	HOUR
DD	10-13	16.5	-
WC	10-13	16.5	0
DC	10-14	16.5	1d

DRILLING METHOD

RIG TYPE CME 55

AUGER TYPE-DEPTH 6" HSA

CASING TYPE-DEPTH -

SAMPLER TYPE SS

Elev	CLASSIFICATION	Depth	N bpf	Qu tsf	W %	Yd pcf
			15	-	16	-
	BR CLAY, A-7-6 (FILL)	5	9	-	17	-
			12	-	21	-
690.9		10	12	-	28	-
	BLK & BR CLAY, A-7-6 (FILL)		10	1.1	24	-
685.9	GR CLAY, A-6 (GLACIAL TILL)	15	14	4.5	17	-
683.4	BR SAND, A-2-4 (GLACIAL OUTWASH)		23	-	22	-
680.9	GR SAND, A-2-4 (GLACIAL OUTWASH)	20	8	-	24	-
			9	2.0	16	-
679.9	GR CLAY, A-6 (GLACIAL TILL)		10	1.9	18	-
	GR CLAY, A-6 (GLACIAL TILL)	25	17	3.3	17	-
	SAND SEAM		12	1.4	20	-
		30	14	3.3	17	-
668.4	GR SAND, A-2-4 (GLACIAL OUTWASH)		13	-	16	-
666.9	COBBLE		8	1.5	15	
	GR LOAM, A-4 (GLACIAL OUTWASH)	35	21	4.0	13	
	COBBLE					
663.4	GR SAND, A-2-4 (GLACIAL OUTWASH)		22	-	10	-
661.9			12	2.7	15	
		40	32	2.4	13	
	GR LOAM, A-4 (GLACIAL TILL)					

CLAUDE H. HURLEY COMPANY — 479 SPRING ROAD — ELMHURST,

BORING LOG

BORING NO. SB-

PROJECT NO. I-64[illegible]

PROJECT ARDMORE AVENUE OVERHEAD HIGHWAY BRIDGE

LOCATION BRIDGE (STRUCTURE) 6+17 (STATION) 40'R (OFFSET) ARDMORE AVENUE (STREET) VILLA PARK, (CITY)

DRILLING CONTRACTOR TEST-COR, INC.

DATE OF DRILLING STARTED 10-13-76 COMPLETED 10-13-76 SURFACE ELEVATION —

DRILLED BY D. JEDLICKA LOGGED BY K. SHANGO

GROUNDWATER DATA

	DATE	DEPTH	HOUR
DD	10-13	16.5	–
WC	10-13	16.5	0
DC	10-14	16.5	18

DRILLING M

RIG TYPE CME

AUGER TYPE-DEPTH

CASING TYPE-DEPTH

SAMPLER TYPE SS

Elev / Depth	CLASSIFICATION	N bpf	q_u tsf	w %	γ_d pcf
	GR LOAM, A-4 (GLACIAL TILL)				
655.9					
45		20	2.0	11	–
	COBBLE				
	GR SANDY LOAM, A-4 (GLACIAL TILL)				
	COBBLE				
50		22	2.2	11	–
648.9	END OF BORING 51.0				
55					

Elev / Depth	CLASSIFICATION	N bpf

CLAUDE H. HURLEY COMPANY — 479 SPRING ROAD — ELMHURST, ILLINOIS

BORING LOG

PROJECT NO. 1-644 — BORING NO. SB-5

PROJECT ARDMORE AVENUE OVERHEAD HIGHWAY BRIDGE

LOCATION BRIDGE (STRUCTURE) 6448 (STATION) 47'L (OFFSET) ARDMORE AVENUE (STREET) VILLA PARK, ILLINOIS (CITY, STATE)

DRILLING CONTRACTOR TEST-COR, INC.

DATE OF DRILLING: STARTED 10-12-76 COMPLETED 10-12-76 SURFACE ELEVATION 695.4

DRILLED BY D. JEDLICKA — LOGGED BY K. SHANNON

GROUNDWATER DATA

	DATE	DEPTH	HOUR
DD	10-12	13.5	-
WC	10-12	14.5	0
	10-13	12.5	1d

DRILLING METHOD

RIG TYPE CME 55

AUGER TYPE-DEPTH 6" HSA

CASING TYPE-DEPTH -

SAMPLER TYPE SS

Elev	CLASSIFICATION	Depth	N bpf	Qu tsf	W %	γd pcf
			17	-	16	-
	BR CLAY, A-7-6 (FILL)	5	12	-	21	-
688.4	BLK & BR CLAY, A-7-6 (FILL)		13	-	19	-
685.9	BR CLAY, A-6 (GLACIAL TILL)	10	13	5.0	20	-
			14	3.5	19	-
681.9	GR SAND, A-2-4 (GLACIAL OUTWASH)	15	22	-	19	-
677.9	GR CLAY, A-6 (GLACIAL TILL)		8	2.8	12	-
		20	15	4.1	15	-
			15	2.8	16	-
	GR CLAY, A-6 (GLACIAL TILL)	25	16	3.6	15	-
			16	3.2	19	-
666.4		30	17	-	13	-
	GR LOAM, A-4 (GLACIAL TILL)		24	-	10	-
		35	11	1.3	14	-
	COBBLE		21	2.4	17	-
		40	20	-	11	-
654.4	END OF BORING	41.0				

CLAUDE H. HURLEY COMPANY

BORING LOG

BORING NO. SB-6

PROJECT NO. 1-644

PROJECT ARDMORE AVENUE OVERHEAD HIGHWAY BRIDGE

LOCATION BRIDGE (STRUCTURE) 6+61 (STATION) 29'R (OFFSET) ARDMORE AVENUE (STREET) VILLA PARK, ILLINOIS (CITY)

DRILLING CONTRACTOR TEST-COR, INC.

DATE OF DRILLING: STARTED 10-6-76 COMPLETED 10-6-76 SURFACE ELEVATION 690.0

DRILLED BY R. SMITH LOGGED BY K. SWANSON

GROUNDWATER DATA

	DATE	DEPTH	HOUR
DD	10-6	6.5	-
WC	10-6	6.5	0
	10-7	7.0	1d

DRILLING METHOD

RIG TYPE CME 55

AUGER TYPE-DEPTH 6" HSA

CASING TYPE-DEPTH -

SAMPLER TYPE AU-SS

Elev. / Depth	CLASSIFICATION	N bpf	Q_u tsf	W %	γ_d pcf
	ER CLAY, A-7-6 (FILL)	AU	-	18	-
		18	-	14	-
686.0	GR CLAY, A-6 (GLACIAL TILL)				
5		13	2.9	18	-
683.5	GR SAND, A-2-4 (GLACIAL OUTWASH)				
		16	-	20	-
10		13	-	25	-
	CLAY SEAM				
678.0		10	1.3	14	-
15		18	2.3	17	-
	GR CLAY, A-6 (GLACIAL TILL)	15	-	23	-
20		16	1.2	19	-
		26	5.2	17	-
	GR CLAY, A-6 (GLACIAL TILL)	11	1.2	18	
666.0					
25		10	1.1	14	
	GR SAND, A-4 (GLACIAL TILL)	10	1.1	13	
30		13	1.6	17	
	COBBLE				
		13	-	15	
656.0					
35		19	-	14	
	COBBLE				
	GR SANDY LOAM, A-4 (GLACIAL TILL)	16	2.0	13	
40					
	COBBLE				

CLAUDE H. HURLEY COMPANY — 479 SPRING ROAD — ELMHURST, ILLINOIS 60126

BORING LOG

PROJECT NO. 1-644 — BORING NO. SB-6 (CONT.

PROJECT ARDMORE AVENUE OVERHEAD HIGHWAY BRIDGE

LOCATION BRIDGE (STRUCTURE) 6+61 (STATION) 29'R (OFFSET) ARDMORE AVENUE (STREET) VILLA PARK, ILLINOIS (CITY, STATE)

DRILLING CONTRACTOR TEST-COR, INC.

DATE OF DRILLING: STARTED 10-6-76 COMPLETED 10-6-76 SURFACE ELEVATION 699.0

DRILLED BY R. SMITH — LOGGED BY L. K. SWANSON

GROUNDWATER DATA

	DATE	DEPTH	HOUR
DD	10-6	6.5	–
WC	10-6	6.5	0
	10-7	7.0	1d

DRILLING METHOD

RIG TYPE CME 55

AUGER TYPE-DEPTH 6" I.D. HSA

CASING TYPE-DEPTH –

SAMPLER TYPE AW-CS

Elev.	Depth	CLASSIFICATION	N bpf	Q_u tsf	W %	γ_d pcf
	45	GR SANDY LOAM, A-4 (GLACIAL TILL)	29	–	12	–
	50		20	2.0	13	–
639.0	51.0	END OF BORING				
	55					

CLAUDE H. HURLEY COMPANY — 479 SPRING ROAD — ELMHURST, ILLINOIS 60126

BORING LOG

PROJECT NO. 1-644 — BORING NO. CB-7

PROJECT ARDMORE AVENUE OVERHEAD HIGHWAY BRIDGE

LOCATION BRIDGE (STRUCTURE) 6+82 (STATION) 35'L (OFFSET) ARDMORE AVENUE (STREET) VILLA PARK, ILLINOIS (CITY, STATE)

DRILLING CONTRACTOR TEST-COR, INC.

DATE OF DRILLING: STARTED 10-6-76 COMPLETED 10-6-76 SURFACE ELEVATION 691.6

DRILLED BY D. JEDLICKA — LOGGED BY K. SWANSON

GROUNDWATER DATA

	DATE	DEPTH	HOUR
DD	10-6	9.5	-
WC	10-6	9.5	0
	10-7	8.7	16

DRILLING METHOD

RIG TYPE CME 55

AUGER TYPE-DEPTH 6" HSA

CASING TYPE-DEPTH -

SAMPLER TYPE AU-SS

Elev	CLASSIFICATION	Depth	N bpf	Qu tsf	W %	γd pcf
	ER CLAY, A-7-6 (FILL)		AU	-	11	-
			16	3.0	13	-
687.1	GR CLAY, A-6 (GLACIAL TILL)	5	17	3.0	15	-
			18	3.2	20	-
682.1	GR SAND, A-2-4 (GLACIAL OUTWASH)	10	23	-	19	-
679.6			13	4.2	13	-
		15	13	4.3	16	-
	GR CLAY, A-6 (GLACIAL TILL)		17	2.8	16	-
		20	16	2.5	17	-
			22	3.1	18	-
667.1	GR CLAY, A-6 (GLACIAL TILL)	25	18	-	12	-
			30	3.0	13	-
	GR LOAM, A-4 (GLACIAL TILL)	30	11	1.2	13	-
	COBBLE		79	2.9	13	-
			8	1.9	18	-
	GR SAND AND GRAVEL, A-1-b (GLACIAL OUTWASH)					
655.1	GR SANDY LOAM, A-4 (GLACIAL TILL)		20	2.0	10	-
652.6	GR SAND AND GRAVEL, A-1-b (GLACIAL OUTWASH)	40	22	-	15	-
650.6	END OF BORING	41.0				

CLAUDE H. HURLEY COMPANY

473 SPRING ROAD

BORING LOG

PROJECT NO. 1-644 BORING NO. SB-8

PROJECT ARDMORE AVENUE OVERHEAD HIGHWAY BRIDGE

LOCATION BRIDGE (STRUCTURE) 7+30 (STATION) 30'R (OFFSET) ARDMORE AVENUE (STREET) VILLA PARK, ILLINOIS (CITY, STATE)

DRILLING CONTRACTOR TEST-COR, INC.

DATE OF DRILLING STARTED 10-6-76 COMPLETED 10-7-76 SURFACE ELEVATION 201.1

DRILLED BY D. JEDLICKA LOGGED BY K. SWANSON

GROUNDWATER DATA

	DATE	DEPTH	HOUR
DD	10-6	18.0	-
DC	10-7	18.0	0
	10-8	18.0	1d

DRILLING METHOD

RIG TYPE CME 55

AUGER TYPE-DEPTH 6" HSA

CASING TYPE-DEPTH -

SAMPLER TYPE AU-SS

Elev / Depth	CLASSIFICATION	N bpf	Qu tsf	W %	γd pcf
	GR CLAY, A-7-6 (FILL)	AU	-	17	-
		15	-	15	-
697.1					
5	BR CLAY, A-6 (GLACIAL TILL)	26	6.5	16	-
		27	7.0	17	-
10		21	6.3	18	-
		26	4.8	13	-
15		20	2.7	17	-
684.6					
	BR SAND, A-2-4 (GLACIAL OUTWASH)	14	-	20	-
20		19	-	20	-
680.6	GR SAND, A-2-4 (GLACIAL OUTWASH)				
680.1	GR CLAY, A-6 (GLACIAL TILL)	8	1.0	19	-
	GR CLAY, A-6 (GLACIAL TILL)	19	4.0	15	
25					
		13	1.4	14	
30		17	2.5	16	
		19	1.9	14	
35					
657.1					
	GR LOAM, A-4 (GLACIAL TILL)	13	1.7	16	
40		14	1.4	13	

CLAUDE H. HURLEY COMPANY — 479 SPRING ROAD — ELMHURST, ILLINOIS

BORING LOG

PROJECT NO. 1-64h — BORING NO. SB-8 (CO

PROJECT ARDMORE AVENUE OVERHEAD HIGHWAY BRIDGE

LOCATION BRIDGE (STRUCTURE) 2+30 (STATION) 30'R (OFFSET) ARDMORE AVENUE (STREET) VILLA PARK (CITY) ILLINOIS (STATE)

DRILLING CONTRACTOR TEST-COR, INC.

DATE OF DRILLING: STARTED 10-6-76 COMPLETED 10-7-76 SURFACE ELEVATION 701.1

DRILLED BY J. JEDLICKA — LOGGED BY K. SWANSON

GROUNDWATER DATA

	DATE	DEPTH	HOUR
DD	10-6	18.0	–
DC	10-7	18.0	0
	10-8	18.0	1d

DRILLING METHOD

RIG TYPE: CME 55

AUGER TYPE-DEPTH: 6" HC

CASING TYPE-DEPTH: –

SAMPLER TYPE: AII-SS

Elev	Depth	CLASSIFICATION	N bpf	Qu tsf	W %	γd pcf
		GR LOAM, A-4 (GLACIAL TILL)				
	45		14	1.4	17	–
655.1		GR SAND AND GRAVEL, A-1-b (GLACIAL OUTWASH)				
653.1		GR LOAM, A-4 (GLACIAL TILL)				
	50		29	3.0	11	–
650.1	51.0	END OF BORING				
	55					

Elev	Depth	CLASSIFICATION	N bpf	Qu tsf	W %

CLAUDE H. HURLEY COMPANY — 479 SPRING ROAD — ELMHURST, ILLINOIS 60126

BORING LOG

BORING NO. BB-9

PROJECT NO. 1-614

PROJECT ARDMORE AVENUE OVERHEAD HIGHWAY BRIDGE

LOCATION BRIDGE (STRUCTURE) 7+52 (STATION) 37'L (OFFSET) ARDMORE AVENUE (STREET) VILLA PARK (CITY) ILLINOIS (STATE)

DRILLING CONTRACTOR TEST-COR, INC.

DATE OF DRILLING: STARTED 10-13-76 COMPLETED 10-13-76 SURFACE ELEVATION 699.8

DRILLED BY D. JEDLICKA LOGGED BY K. SWANSON

GROUNDWATER DATA

	DATE	DEPTH	HOUR
BD	10-13	17.0	–
	10-13	17.0	0
	10-13	17.0	16

DRILLING METHOD

RIG TYPE CME 55

AUGER TYPE-DEPTH 6" HSA

CASING TYPE-DEPTH –

SAMPLER TYPE AU-SS

Elev.	Depth	CLASSIFICATION	N bpf	Qu tsf	W %	Yd pcf
		BLK CLAY, A-7-6 (FILL)	AU	–	22	–
			10	–	25	–
696.8						
	5		20	5.0	10	–
		BR CLAY, A-6 (GLACIAL TILL)	13	5.0	18	–
	10		16	6.8	14	–
			19	4.5	22	–
685.8		GR CLAY, A-6 (GLACIAL TILL)	15	4.6	18	–
683.3		BR SAND, A-2-4 (GLACIAL OUTWASH)	18	–	22	–
682.7		GR SAND, A-2-4 (GLACIAL OUTWASH)	14	–	19	–
	20		14	3.0	15	–
679.3		GR CLAY, A-6 (GLACIAL TILL)	14	3.1	15	–
		SILT SEAM				
		GR CLAY, A-6 (GLACIAL TILL)				
		GRAVEL				
665.8						
	25		16	2.9	16	–
			12	2.0	19	–
	30		16	4.5	17	–
			28	3.8	19	–
	35		23	3.9	15	–
		GR LOAM, A-4 (GLACIAL TILL)	15	1.6	12	–
	40		73	4.5	15	–

CLAUDE H. HURLEY COMPANY — 479 SPRING ROAD — ELMHURST, ILLINOIS

BORING LOG

PROJECT NO. 1-64 — BORING NO. SB-9 (Cont)

PROJECT ARDMORE AVENUE OVERHEAD HIGHWAY BRIDGE

LOCATION BRIDGE (STRUCTURE) 7+52 (STATION) 37'L (OFFSET) ARDMORE AVENUE (STREET) VILLA PARK (CITY) ILLINOIS (STATE)

DRILLING CONTRACTOR TEST-COR, INC.

DATE OF DRILLING: STARTED 10-13-76 COMPLETED 10-13-76 SURFACE ELEVATION 692.8

LOGGED BY K. SWANSON

DRILLED BY D. JEDLICKA

GROUNDWATER DATA

	DATE	DEPTH	HOUR
WD	10-13	12.0	-
	10-13	17.0	0
	10-14	17.0	1d

DRILLING METHOD

RIG TYPE CME 55

AUGER TYPE, DEPTH 6" HSA

CASING TYPE, DEPTH -

SAMPLER TYPE AU-SS

Elev. / Depth	CLASSIFICATION	N bpf	Qu - tsf	W %	γd pcf
	GR LOAM, A-4 (GLACIAL TILL)				
656.3 / 45	GR SAND AND GRAVEL, A-1-b (GLACIAL OUTWASH)	30	-	14	-
651.3 / 50	GR LOAM, A-4 (GLACIAL TILL)	40	4.7	11	-
647.8 / 55	GR SANDY LOAM, A-4 (GLACIAL TILL)	18	-	22	-
643.8 / 56.0	END OF BORING				
60					

Elev. / Depth	CLASSIFICATION	N bpf	Qu tsf	W %

STRUCTURE GEOTECHNICAL REPORT RESPONSIBILITY CHECKLIST

Illinois Department of Transportation

Structure Geotechnical Report Responsibility Checklist

Structure Number: 022-6930 (prop.) 022-6930 (exist.) Contract Number: _____ Date: 4/3/2010

Route: FAU 2651 Section: 76-00046-00 GS County: DuPage

TSL plans by: V3 Companies of Illinois, Ltd.

Structure Geotechnical Report and Checklist by: Everest Engineering Company

IDOT Structure Geotechnical Report Approval Responsibility : ☐ Qualified District Geotechnical Personnel ☐ BBS Central Geotechnical Unit

	Yes	No	N/A
Geotechnical Data, Subsurface Exploration and Testing			
All pertinent existing boring data, pile driving data, site inspection information included in the report?	☒	☐	☐
Are the preliminary substructure locations, foundation needs, and project scope discussions between Geotechnical Engineer and Structure Planner included in the report?	☒	☐	☐
All ground and surface water elevations shown on all soil borings and discussed in the report?	☒	☐	☐
Has all existing and new exploration and test data been presented on a subsurface data profile?	☒	☐	☐
Is the exploration and testing in accordance with the IDOT Geotechnical Manual policy?	☐	☐	☒
Are the number, locations, depths, sampling, testing, and subsurface data adequate for design?	☐	☐	☒
Geotechnical Evaluations			
Have structure or embankment settlement amounts and times been discussed in report?	☐	☐	☒
Does the report provide recommendations/treatments to address settlement concerns?	☐	☐	☒
Has the critical factor of safety against slope instability been identified and discussed in the report?	☐	☐	☒
Does the report provide recommendations/treatments to address stability concerns?	☐	☐	☒
Is the seismic design data (PGA, amplification, category, etc.) noted in the report?	☒	☐	☐
Have the vertical and horizontal limits of any liquefiable layers been identified and discussed?	☐	☐	☒
Has seismic stability been discussed and have any slope deformation estimates been provided?	☐	☐	☒
Has the report discussed the proximity of ISGS mapped mines or known subsidence events?	☐	☐	☒
Has scour been discussed, any Hydraulics Report depths reported & soil type reductions made?	☐	☐	☒
Do the Factors of Safety meet AASHTO and IDOT policy requirements?	☐	☐	☒
Geotechnical Analyses and Design Recommendations			
When spread footings are recommended, has a bearing capacity and footing elevation been provided for each substructure or footing region?	☐	☐	☒
Has footing sliding capacity been discussed?	☐	☐	☒
When piles are recommended, does the report include a table indicating estimated pile lengths vs. a range of feasible required bearings and design capacities for each pile type recommended?	☒	☐	☐
Have any downdrag, scour, and liquefaction reductions in pile capacity been addressed?	☐	☐	☒
Will piles have sufficient embedment to achieve fixity and lateral capacity?	☒	☐	☐
Have the diameters & elevations of any pile pre-coring been specified (when recommended)?	☐	☐	☒
Has the need for test piles been discussed and the locations specified (when recommended)?	☒	☐	☐
Has the need for metal shoes been discussed and specified (when recommended)?	☐	☐	☒
When drilled shafts are recommended, have side friction and/or end-bearing values been provided?	☐	☐	☒
Has the feasibility of using belled shafts been discussed when terminating above rock, or have estimated top of rock elevations been provided when extending into rock?	☐	☐	☒
Have shaft fixity, lateral capacity, and min. embedment been discussed?	☐	☐	☒
When retaining walls are required, has feasibility and relative costs for various wall types been discussed?	☐	☐	☒
Have lateral earth pressures and backfill drainage recommendations been discussed?	☒	☐	☐
Has ground modification been discussed as a way to use a less expensive foundation or address feasibility concerns?	☐	☐	☒
Have any deviations from IDOT Geotechnical Manual or Bridge Manual policy been recommended?	☐	☒	☐
Construction Considerations			
Has the need for cofferdams, seal coat, or underwater structure excavation protection been discussed?	☐	☐	☒
Has stability of temporary construction slopes vs. the need for temporary walls been discussed?	☒	☐	☐
Has the feasibility of cantilevered sheeting vs. a temporary soil retention system been discussed?	☒	☐	☐
Has the feasibility of using a geotextile wall vs. a temp. MSE for any temp fill retention been noted?	☐	☐	☒

"In order to aid in determining the level of departmental review, please attach additional documentation or reference specific portions of the SGR to clarify any checklist responses that reflect deviation from IDOT policy/practice."

BBS-2602 (4/05)